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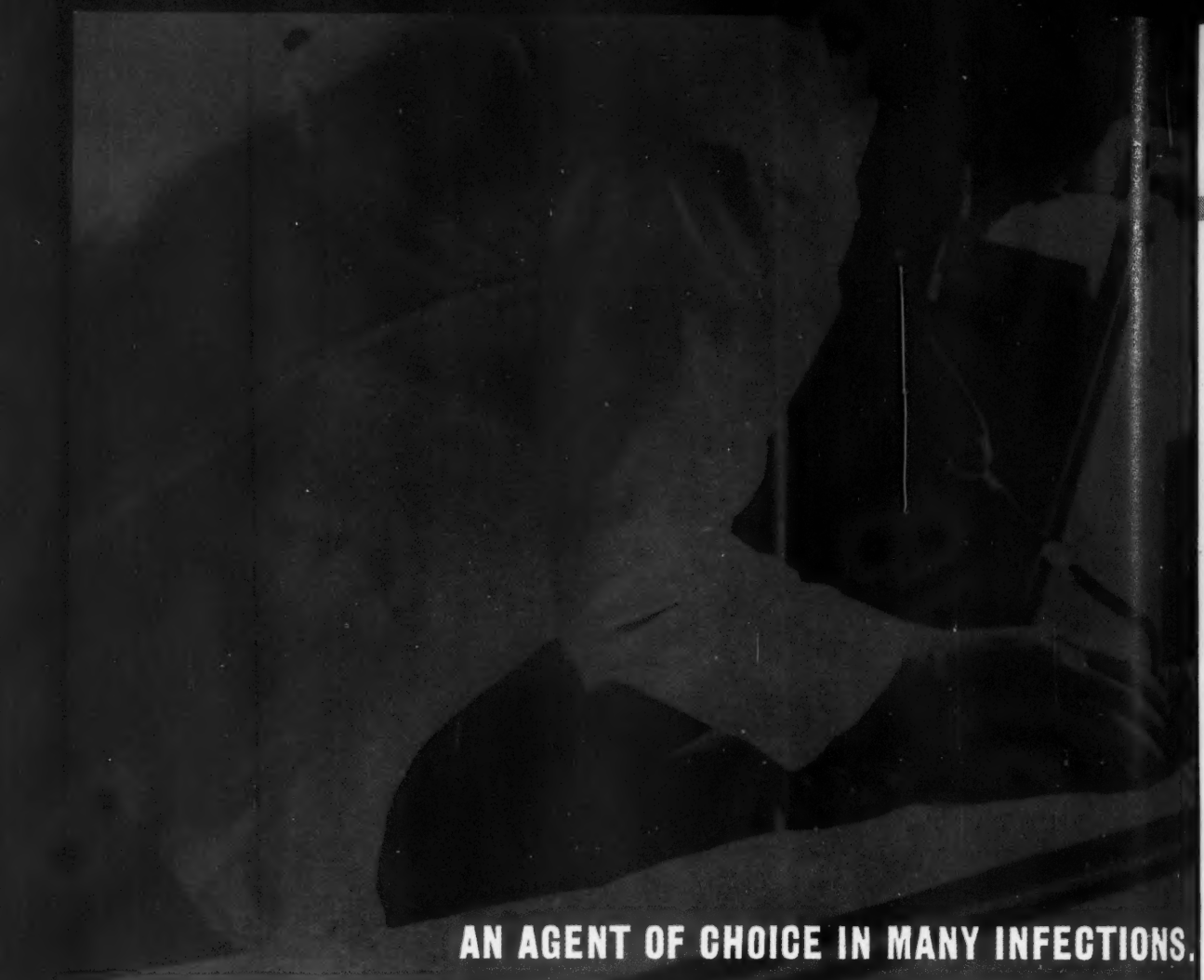

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**REFERENCES:** (1) Holloway, W. J., & Scott, E. G.: *Delaware M. J.* **29**:159, 1957. (2) Suter, L. S., & Ulrich, E. W.: *Antibiotics & Chemother.* **9**:38, 1959. (3) Murphy, J. J., & Rattner, W. H.: *J.A.M.A.* **166**:616, 1958. (4) Rhoads, P. S.: *Postgrad. Med.* **21**:563, 1957. (5) Horton, B. F, & Knight, V.: *J. Tennessee M. A.* **48**:367, 1955. (6) Seneca, H.: *Am. Pract. & Digest Treat.* **10**:622, 1959. (7) Hall, W. H.: *M. Clin. North America* **43**:191, 1959. (8) Seneca, H., *et al.*: *J. Urol.* **81**:324, 1959. (9) Wolfsohn, A. W.: *Connecticut Med.* **22**:769, 1958.

# Editorial

## Principles of Medical Ethics

It is desirable to re-examine occasionally the principles of medical ethics. The frequency depends a good deal on the conditions of the times. Medical topics have such an appeal to the public that the slicks and the lay press have gotten into the picture to a degree that has made it difficult for the physician to know what is proper and what is not. A more serious aspect is the desire for or need of money. While the love of money has been considered the root of evil for the individual, it is now apparent that the love of money can be the root of evil for an institution as well. An institution for medical service cannot be effective or even operate without medical personnel. It is, therefore, often deemed necessary to include data about medical personnel in material printed for lay consumption. To what extent can this be considered ethical?

The Judicial Council of the American Medical Association "does not believe it is appropriate to define terms not used in the Principles which connote unethical conduct because neither definition nor description determines the ethical nature of conduct." (1954 Report.)

It, therefore, is incumbent upon the individual, the group and the institutions to apply the spirit of the Principles of Medical Ethics to their own conduct. The spirit is expressed in the Preamble to the Principles of Medical Ethics as follows:

"These principles are intended to serve the physician as a guide to ethical conduct as he strives to accomplish his prime purpose of serving the common good and improving the health of mankind. They provide a sound basis for solution of many of the problems which arise in his relationship with patients, with other physicians, and with the public. They are not immutable laws to govern the physician, for the ethical practitioner needs no such laws; rather they are standards by which he may determine the propriety of his own conduct. Undoubtedly, interpretation of these principles by an appropriate authority will be required at times. As a rule, however, the physician who is capable, honest, decent, courteous, vigilant, and an observer of the Golden Rule, and who conducts his affairs in the light of his own conscientious interpretation of these principles will find no difficulty in the discharge of his professional obligations."

"The ethical principles actuating and governing a group or clinic are exactly the same as those applicable to the individual." Chapter 1, Sec. 3.

The Principles of Medical Ethics do not proscribe advertising as such; they proscribe the solicitation of patients. Solicitation, as used in the Principles, means to attempt to obtain patients by persuasion or influence.

"Solicitation of patients, directly or indirectly, by a physician, by groups of physicians or by institutions or organizations is unethical. This principle protects the public from the advertiser and salesman of medical care by establishing an easily discernible and generally recognized distinction between him and the ethical physician. Among unethical practices are included the not always obvious devices of furnishing or inspiring newspaper or magazine comments concerning cases in which the physician or group or institution has been, or is, concerned. Self-laudations defy the traditions and lower the moral standard of the medical profession; they are an infraction of good taste and are disapproved.

The most worthy and effective advertisement possible, even for a young physician, especially among his brother physicians, is the establishment of a well-merited reputation for professional ability and fidelity. This cannot be forced, but must be the outcome of character and conduct. The publication or circulation of simple professional cards is approved in some localities but is disapproved in others. Disregard of local customs and offenses against recognized

ideals are unethical." Chapter 1 Sec. 4, 1955 Edition of Medical Ethics.

Annotations of this subject by the Judicial Council are as follows:

### Advertising by Groups

"Many of the questions submitted to the Council involve the subject of advertising. As is well-known, there is a marked tendency of late for physicians to organize themselves into so-called groups under various designations, such as group clinics, diagnostic clinics, group medicine, medical institutes, the (blank) medical academy, and similar names. Unfortunately some of these groups are advertising in a manner that would be considered most reprehensible if done by an individual physician. The Council is unable to see any difference in principle between a group of physicans advertising themselves under whatsoever title they may assume and an individual physician advertising himself. *(1922 Report)*"

### "Advertising" Determined by Factor in Each Case

"There was submitted to the Council an inquiry as to whether a given advertisement of a certain medical institution, which the institution desired to run in the public press, was ethical or unethical, and if not ethical, wherein specifically it was unethical. The answer to this question cannot be based solely on the wording of the advertisement. It is perfectly evident that an advertisement which would be proper under one set of conditions might be highly improper under a different set. *(1922 Report)*"

### Review of Advertising Practices Obligation of Local Societies

"A great many communications have been received with respect to advertisements used by individual physicians, groups, clinics, pay clinics and hospitals owned by individuals or groups. Practically all of the advertising that has been submitted, has been found objectionable. This Council wishes to state, however, that the members of the state associations who use objectionable advertising are responsible to and under the control of the censorial agencies of the societies of which they are members. The Secretary has been directed, therefore, to refer communications of this nature to the secretary of the constituent medical association concerned, with the suggestion that they should be brought to the attention of the board of councilors, or through them to the attention of the board of censors of the component society concerned. *(1923 Report)*"

The responsibility for maintaining his own conduct in line with ethical standards is the physician's—no institution or group can dilute or negate this responsibility. The whole idea is the protection of the public and the establishment of rules of conduct among members of the profession, but solicitation of patients under any guise is unethical.

APPETITE, *n.* An instinct thoughtfully implanted by Providence as a solution to the labor question.

*From the Devil's Dictionary by Ambrose Bierce*
—Sagamore Press, Inc.

# Scientific Articles

W. R. RICHARDSON, M.D.

D. W. FOERSTER, M.D.

# Causes of Burns in Oklahoma

William R. Richardson, M.D., graduated from Harvard Medical School in 1944 and has been certified by the American Board of Surgery. He is Professor of Pediatric Surgery and Chief of Surgery at the Children's Memorial Hospital, Oklahoma City.

Doctor Richardson is a Fellow in the American College of Surgeons, a member of the American Academy of Pediatrics and the Southwestern Surgical Congress.

David William Foerster, M.D., graduated from the University of Oklahoma School of Medicine in 1958. He is now a resident in surgery at the same school.

A Study of the Causes of the Severe Burns Treated at the University Medical Center 1954 through 1958.

THE MAGNITUDE of the human damage caused by thermal burns is emphasized by statistics from many sources. Of the more than 70,000 burns recorded annually in the U.S.A. nearly 10,000 prove fatal. Of these, 70% occur in the home area and a majority of those burned are children or elderly adults.[1] In the 1958 report of the Oklahoma Crippled Children's Commission,[2] the burn is the leading single diagnosis when ranked by either the number of cases, number of days hospitalized, or Commission dollars expended. Thermal burns exceeded the next two ranking diagnoses, acute rheumatic fever and spina bifida, by 90% and 40% respectively.

**Death and disability from burns remain appalling. Prevention is the only good treatment. Etiologic data from our own state implicate at least two factors worthy of attack.**

In spite of extensive research, effort, and progress in the fields of parenteral fluid therapy, nutrition, antibiotics, skin grafting, etc., improvement in the mortality associated with the extensive burn has been disappointing[3] and the morbidity remains appalling. It appears reasonable to conclude that ultimate major advances must arise in the field of prevention. A study of causes seemed a logical early step in a program aimed at burn prevention. This series from the University of Oklahoma Medical Center may not be truly representative of the burns suffered throughout the state, but should still provide the best single source of historical information on patients from all parts of the state. Use of a recent five-year period provides an adequate number of

From the Department of Surgery, University of Oklahoma School of Medicine.

TABLE 1

**General Classification of Causative Agents**

| | No. of Patients | Clothing Ignited |
|---|---|---|
| I. Stoves | 69 | 62 |
| A. Gas Ranges | 7 | 6 |
| B. Gas Heaters & Stoves | 40 | 36 |
| C. Wood Burning Stoves | 4 | 4 |
| D. Kerosene & Oil Stoves | 5 | 5 |
| E. Floor Furnaces | 1 | 0 |
| F. Unknown Type Stoves | 12 | 11 |
| II. Inflammable Liquids | 43 | 35 |
| A. Kerosene | | |
| 1. Starting or aiding fires | 9 | 7 |
| 2. Other Use | 1 | 1 |
| B. Gasoline | | |
| 1. Carburetor Explosions | 3 | 1 |
| 2. Starting or aiding fires | 4 | 4 |
| 3. Cleaning Purposes | 2 | 2 |
| 4. Other Use | 12 | 8 |
| C. Oil | | |
| 1. Starting or aiding fires | 1 | 1 |
| D. Cleaning Fluids | 2 | 2 |
| E. Ignition of Fuel Soaked Clothes | 9 | 9 |
| III. Open Fires (other than stoves) | 39 | 35 |
| A. Matches | 12 | 12 |
| B. Trash Fires | 10 | 10 |
| C. House Fires | 10 | 7 |
| D. Wood Burning Fireplaces | 3 | 2 |
| E. Brush and Grass Fires | 2 | 2 |
| F. Camp Fires | 2 | 2 |
| IV. Scalding Liquids | 33 | 0 |
| A. Water | | |
| 1. Off Stove | 6 | 0 |
| 2. Coffee and Tea | 6 | 0 |
| 3. Wash Water | 8 | 0 |
| 4. Vaporizers | 3 | 0 |
| 5. Hot Water Bottle | 1 | 0 |
| 6. Unknown | 1 | 0 |
| V. Miscellaneous | 29 | 12 |
| A. Auto Accidents | 5 | 1 |
| B. Butane & Propane Explosions | 5 | 3 |
| C. Electrical | 2 | 2 |
| D. Chemicals | 3 | 2 |
| E. Pipeline Explosions | 2 | 2 |
| F. Candles | 4 | 0 |
| G. Cigarette Ignited Clothes | 1 | 1 |
| H. Hot Water Heater | 1 | 0 |
| I. Welding Torch | 1 | 1 |
| J. Ignited Bed Clothes | 1 | 1 |
| K. Chicken House Fire | 1 | 1 |
| L. Hot Pavement | 1 | 0 |
| M. Pressing Iron | 1 | 0 |
| VI. Cause Unknown | 19 | 7 |
| GRAND TOTAL | 231 | 153 |

cases and is consistent with the aims of preventive medicine where emphasis is implicitly on the present and future.

## Materials and Methods

The records of 231 consecutive patients with second and third degree burns admitted to University Hospitals, Oklahoma City, from January 1, 1954 to January 1, 1959 were reviewed. The apparent causative agent of all but 19 cases was ascertained either by chart history or by correspondence. Other data collected include age, sex, race, body areas burned, per cent of body burned, degree of burn, number of surgical procedures, number of days hospitalized, dollar cost of hospitalization and early follow-up care. Only items pertinent to our subject will be reviewed here.

## Results

A general classification of the causative agents is presented in table 1. In reviewing the 231 cases, six major groups could be delineated: stoves (69); inflammable liquids (43); open fires other than stoves (39); scalding liquids (33); miscellaneous (28); and unknown cause (19). This classification is somewhat similar to that used by British investigators who have pioneered the modern investigations of civilian burn prevention.[4,5]

Each of the major groups was further broken down as to the specific agent of ignition. Gas heaters and stoves accounted for 40 burns and constituted by far the most common specific etiologic item. No doubt several of the 1 stove burns of unknown type were also inflicted by gas appliances.

Consideration of the mechanisms by which the various agents effected damage immediately points out a common denominator—the ignition of clothing. Of the 231 patients burned, 153 or 66% involved ignition of clothing. This figure increases to 78% if scalds are excluded. Clothing burns showed no statistical predilection for upper or lower body surfaces.

Table 2 indicates that stove-burned patients tended to be slightly younger and more often female (2:1 ratio). A similar predominance of males is reflected in the inflammatory liquids and miscellaneous

TABLE 2

**Relation of Causative Agents to Age, Sex and Race**

| Causative Agent | Average Age in years | Sex | Race |
|---|---|---|---|
| I. Stoves | 15 | Fe-48 | W-47 |
| | | M-21 | C-20 Ind.-2 |
| II. Inflammable Liquids | 17 | Fe-15 | W-32 |
| | | M-28 | C- 9 Ind.-2 |
| III. Open Fires | 22 | Fe-20 | W-27 |
| | | M-19 | C-11 Ind.-1 |
| IV. Scalding Liquids | 17 | Fe-16 | W-26 |
| | | M-17 | C- 7 |
| V. Miscellaneous | 20 | Fe- 7 | W-21 |
| | | M-21 | C- 4 Ind.-3 |
| VI. Cause Unknown | 23 | Fe- 9 | W-13 |
| | | M-10 | C- 6 |
| TOTAL | 18 yrs. | Fe-115 | W-116 |
| | | M-116 | C- 57 |
| | | | Ind.- 8 |

groups. Racial distribution is not remarkable and is comparable to the University Hospitals' general admission pattern. Further analysis of the age data is presented in table 3 with correlation groups arbitrarily established as follows: under one year representing pre-walking infants; 1-5 years representing pre-school children in a predominantly home environment; 6-11 years, elementary school children away from home part of the time; 12-18 years, junior and senior highschool students; 19-65 years, the adult working age group; and over 65 years representing the elderly or retired segment. Again stove or heater burns were prominent in all but the infant group.

Table 4 presents an attempt to correlate cause with severity as measured by body surface area and depth of the burn. It was not possible to determine from the records the precise or even relative proportions of second and third degree involvement in all cases; therefore, if any part of the burned area was full-thickness third degree, the patient was arbitrarily classified as third degree. The occurrence of nine (19%) very extensive burns (over 50% surface area) in the 43 burns caused by inflammable liquids is emphasized. About three-fourths of the total series had some third degree involvement with the exception of the scald group.

Table 5 permits correlation of the causative agent with length, cost and complexity of the hospital care period as reflected by

TABLE 3

**Relation of Age Grouping to Causative Agens**

| Age Group | Total Patients | Stoves | Inflammable Liquids | Open Fires | Scalding Liquids | Unknown | Miscellaneous |
|---|---|---|---|---|---|---|---|
| <1 | 6 | 1 | 0 | 0 | 2 | 2 | 1 |
| 1-5 | 83 | 26 | 1 | 16 | 18 | 7 | 9 |
| 6-11 | 52 | 21 | 16 | 6 | 3 | 2 | 4 |
| 12-18 | 19 | 6 | 5 | 3 | 1 | 1 | 3 |
| 19-65 | 59 | 12 | 15 | 12 | 6 | 3 | 11 |
| >65 | 12 | 4 | 0 | 2 | 3 | 3 | 0 |

TABLE 4

**Relation of Causative Agents to Burn Severity**

| Causative Agent | Percent of Body Burned Average | (Range) | Greatest Degree of Burn | | Percent of Cases with 3° | Fatalities (Mortality rate) | |
|---|---|---|---|---|---|---|---|
| I. Stoves | 20% | (1 to 65) | 2°-10 | 3°-59 | 86% | 8 | (12%) |
| II. Inflammable Liquids | 30% | (1 to 96) | 2°- 8 | 3°-35 | 81% | 6 | (14%) |
| III. Open Fires | 25% | (1 to 85) | 2°- 5 | 3°-34 | 87% | 8 | (20%) |
| IV. Scalding Liquids | 13% | (1 to 50) | 2°-16 | 3°-17 | 52% | 0 | |
| V. Miscellaneous | 14% | (1 to 60) | 2°- 8 | 3°-20 | 71% | 5 | (17%) |
| VI. Unknown Cause | 19% | (1 to 80) | 2°- 2 | 3°-17 | 89% | 2 | (10%) |
| TOTAL | 21% | | 2°-59 | 3°-172 | 74% | 29 | (12.5%) |

days, dollars and operations, respectively. Stove and heater burns alone accounted for 2828 hospital days—the equivalent of slightly more than 1½ beds occupied constantly for the five full years. The average primary hospitalization periods of the stove, inflammable liquid and open fire groups are about 40 days or roughly twice the length of the remaining groups,[1] with the total series averaging 33.6 days. The total number of surgical procedures (debridement, skin grafting, dressing change under anesthesia) required for the stove cases was 2½ times that of the next highest group, inflammable liquids, and contributed over half the total operations. It is of interest that the stove burns averaged 3.8 procedures per patient as compared to 2.3 for the second highest group although the hospital stay averages were 41 and 40 days respectively.

Monetary expenditures for hospitalization as presented here are too low because an average per diem charge cannot reflect the numerous items that make burn care so expensive—special nurses, drugs, operative procedures, blood and blood substitutes, dressings, isolation space, tub facilities, etc. Nevertheless, the hospital costs computed on per diem estimates ranging from $18.74 in 1955 to $25.74 in 1958 are presented for emphasis and reflection. The five year total is $171,000 or an average of almost $775.00 per patient. The known early secondary admissions for treatment of complications such as skin contractures raised the total to almost $200,000.

The best reflection of burn severity is mortality. A separate tabulation and presentation of fatal cases is indicated both for

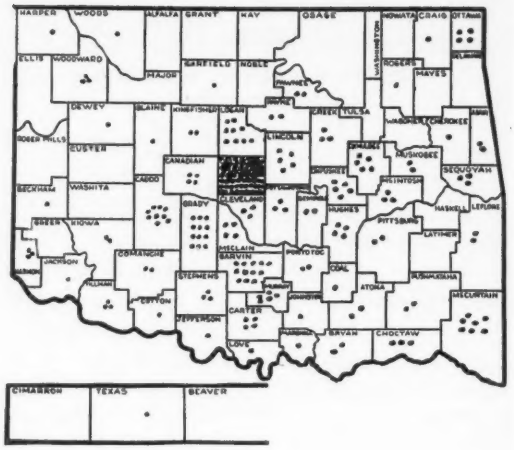



Figure 1

emphasis and to avoid the paradoxical decrease in average hospital stay of groups with high mortality rates. The 29 fatal cases are presented in table 6. The generally less serious nature of the scalds is reflected in their absence here. Our major groups seem about equally deadly. All but one of the deaths involved ignition of clothing. The exception was the youngest study patient, a premature infant with only 10% burn area recorded, cause unknown. The oldest patient, age 104 years, was also fatally burned (40% third degree) by a midnight house fire. The average was 26.2 years. The average extent of those with a third degree component was 54% surface area (10-96% range). Average survival time was 17.1 days with only two patients living beyond one month (54 and 77 days). Six of the seven patients who received tracheostomies for respiratory burn involvement died. Two others developed massive gastro-

TABLE 5

**Relation of Causative Agent to Hospital Care Expense**

| Causative Agent | Hospital Days Total | Hospital Days Average | Cost of Hospital Total | Cost of Hospital Average | Surgical Procedures Total | Surgical Procedures Average |
|---|---|---|---|---|---|---|
| I. Stoves | 2828 | 41 | $64,755.63 | $938.49 | 258 | 3.8 |
| II. Inflammable Liquids | 1717 | 40 | 41,518.87 | 965.55 | 97 | 2.3 |
| III. Open Fires | 1410 | 36 | 31,307.87 | 802.77 | 62 | 1.6 |
| IV. Scalding Liquids | 644 | 21 | 16,052.80 | 486.45 | 31 | 0.7 |
| V. Miscellaneous | 686 | 24 | 16,006.28 | 471.65 | 30 | 1.1 |
| VI. Unknown Cause | 441 | 23 | 9,198.81 | 511.05 | 25 | 1.3 |
| TOTAL | 7756 | | $178,840.19 | | 503 | |
| Average | | 33.6 | | $774.24 | | 2.2 |

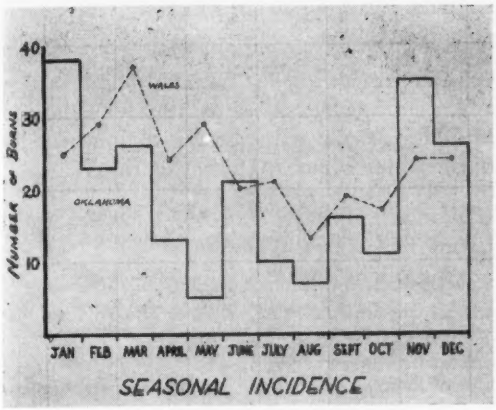



Figure 2

intestinal hemorrhage before death. Of the 29 deaths, 22 were in female patients.

### Geographic Distribution

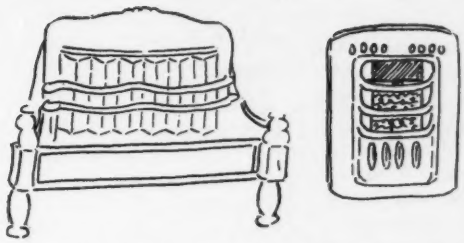
Figure 1 indicates the counties where the burns occurred. Only Oklahoma county furnished a large number (68), with all but five from Oklahoma City. None were from Tulsa. Grady and Garvin counties ranked second with 12 each.

Classification of the Oklahoma City patients was carried out to demonstrate possible rural and urban differences. The causal distribution was that of the total series except for a decrease in the combustible liquid and an increase in the scald groups. The outdoor and indoor domestic areas respectively involved would seem to provide a reasonable explanation for this shift.

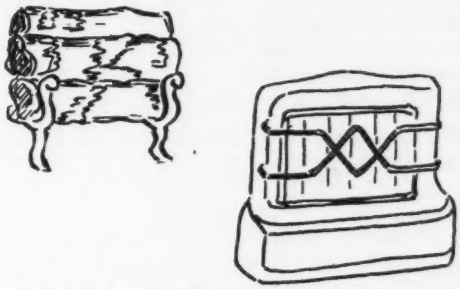
### Time Incidence

Figure 2 demonstrates a seasonal incidence with analysis by months. The clear-cut increase during the winter months is the usual finding, but Wilkinson in a large series[8] found occasional months with an unusually high level without evident cause. The 1955 Wales series[7] had a quite similar distribution, as represented by the broken line added to figure 2.

Analysis by day-of-the-week of the burn occurrence demonstrated no real predominance although Sunday and Monday seemed slightly less busy. The number of burns treated each year has been fairly uniform.



Pictured above (left) is fireplace gas heater and (right) gas bathroom heater, both of which are AGA approved.



Pictured above (left) gas logs and (right) heater both of which are current examples of inadequately guarded gas heaters.

Figure 3

### Sex Incidence

Although the total series is equally divided as to sex incidence, the grouping by cause and age demonstrates interesting variations (table 2). The equality is evident in the open fires, scalds, and unknown categories, but the more than two-to-one female predominance in the stove burns offsets the male majority in the inflammable liquid and miscellaneous categories. The latter group is composed of predominantly non-domestic, adult, and male situations.

The average ages listed in table 2 have little significance and even obscure the important distribution, but table 3 emphasizes the distressing incidence of serious burns in young children. Sixty-one per cent of the total series were under 12 years old, and 39% were pre-school. Here again the narrow female excess (50:39) in the pre-school group is about balanced by the (29:23) male shift in the six through 11 year group. Table 6 points out the deadly nature of the female patient's burns and age group analysis confirms this higher death rate even in the age ranges where male overall burn incidence is greater.

TABLE 6

MORTALITY

| FATALITIES | |
|---|---|
| Stoves | 8 |
| Inflammable Liquids | 6 |
| Open Fires | 8 |
| Scalding Liquids | 0 |
| Miscellaneous | 5 |
| Unknown Cause | 2 |
| TOTAL | 29 |

Average Age—26.2 yrs. (1 Wk. to 104 year range)
Average % burned area—54% (10-96% range)
Average Survival Time—17.1 days
Ignited Clothing—28 of 29
Sex: 22 female and 7 male

### Combustible Liquids

The victims of scalds and stove-induced burns seemed to lack protection but the distressingly high number of inflammable liquid victims suggests the need for education. The latter were predominantly male and avoided the age extremes. Adult misuse of gasoline and kerosene as other than primary fuel was appalling. These fires originated outside but near the home in many instances.

Several other items are of interest and probable significance:

Conflagrations (usually houses) were involved in only 15 cases. This approaches the lower national incidence recorded for England[5] possibly because of our relatively uncrowded residential areas.

Automobile crash accidents contributed in seven cases and several other injuries occurred while the victim was working on or near an automobile.

Seizures or "spells," usually in known epileptics, led directly to the heat contact in eight cases.

Mental retardation was noted as contributory in seven cases.

Neuropathy with sensory deficit (diabetes, spina bifida, etc.) occurred four times.

Contrary to popular conception, only once was alcoholism contributory and only twice were cigarettes blamed.

Deliberately inflicted injuries were specified twice.

In keeping with our national habit, coffee replaced the British tea as a major domestic scalding agent, with grease and especially wash water occurring several times.

Only one fireworks injury was noted and the human damage was indirect.

Misuse of matches (usually children playing) was involved in no less than 12 cases. Would safety matches help?

Only two electrical burns were encountered. One was industrial, the other a typically mutilating oral burn in an infant.

### Discussion

When the fundamentally destructive nature of thermal trauma and the significance of the skin as a major organ are acknowledged, it is evident that there can be no cure. Only prevention can reduce the suffering and death associated with severe burns. Our findings confirm that the vast majority of domestic burns are preventable and suggest a few practical approaches to the ideal of prevention.

Two factors have recurred with notable frequency in the etiologic data, especially on the more severe injuries. The major single mechanism in severe burn production was the ignition of clothing while the most common source of ignition was the open flame of a gas heating appliance.

The various "stoves" grouped in table 1 are especially common throughout the South and Southwest and share a popularity factor—their usefulness as room heaters. Appliances burning natural gas were by far the most common offenders. Geographic and socio-economic factors are evident: (a) a temperate, labile climate encourages the use of room heating elements with or without central heating; (b) natural gas as a fuel is locally abundant, available, relatively cheap, and well-adapted for use in the wall furnaces and movable non-vented heating elements; (c) the latter are common-place, especially in the older and poorer dwellings, where they may constitute the only heating system.

When the major causes of domestic burns have been investigated in other regions in the United States and Europe, the strong influence of the predominant local fuel is promptly evident *only if* the flame or hot element is *unguarded* or if a highly volatile combustible liquid is used. Thus we find the open wood fireplace in North Carolina,[1] the coal fire in England,[4] Wales,[7] and Scotland,[8] the ignition or explosion of spirit and petrol in Sweden,[6] and the same liquids plus open coal fires in Austria[6]—all accounting for a high percentage of the severe burns in their respective localities. This should be interpreted as incrimination of the appliance, rather than the fuel. Figure 3 depicts some common gas heating appliances widely used and still sold in this area. The almost complete absence of electric heaters from the Oklahoma City, Dallas, and Stockholm guilt list contrasts with their frequency (second only to open coal fires) in England and Wales, where many electric units are still without screen or mesh guards. What better evidence could we have that the simple and inexpensive measure of attaching proper guard screens to the open flame elements would materially reduce the needless pain, crippling, and slaughter from burns the world over?

The ignition of clothing almost achieves the status of a common denominator in the more serious burns, being involved in 66% of the total series and 78% when scalds are excluded. The relative inflammability of cotton and rayon fabrics is well known. Especially do the "raised," loose-knit varieties such as flannelette far exceed the wool, silk or nylon garments in ease of ignition and rapidity of flame propagation and intensity.

The reasons for the regional popularity of cotton clothing are similar to those mentioned for gas heaters: local abundance, general adaptability for local economic and climatic needs, and low cost. The great need for application of a safety factor in the use of both gas and cotton is obvious. *Improved heater guard design and flame-profing of cotton fabrics apear to offer ultimately more therapeutic hope than any of the elaborate physiologic manipulations or investigations of the post-burn victum.* The design or style factor is also significant in the role of clothing ignition as suggested by the increased incidence of severe and fatal burns in females. Time and time again the story was that of a young girl igniting her dress, bathrobe, or nightgown while warming herself before the stove.

Table 1 provides food for further thought. Protection is needed for the young, the old, and the infirm. Education, even more than protection, can help the rash or unwary. The role of the family physician in surveying the homes of his patients should be extended when vulnerable individuals are present. As citizens, we can all attack the obvious deficit in safety education, especially as regards the apparently unappreciated danger of misuse of highly combustible fluids.

A detailed review of burn and accident preventive measures is beyond the scope of our discussion. An extension of these efforts to collect data as to causative factors is indicated in other parts of the country. The public must be made aware of the problem and the medical profession should take the lead in that process. Progress in the development of a practical flame retardant for cotton clothing is encouraging and the catastrophic potential of atomic disaster has stimulated renewed research efforts by our armed services. Once the chief causes of accidents become widely known, appropriate preventive measures will be expedited. As Mr. Tempest of Cardiff, Wales has phrased it so well: "We pay lip service far too often to the axiom 'Prevention is better than cure'. Here is a problem which we know to be largely preventable. Those of us who are constantly seeing the results must take a far more active part in eradicating the causes, even though the remedy is not a new drug or an intricate surgical maneuver, but rather an exercise in social medicine in its widest sense."


### Summary

1. A series of 231 consecutive severely burned patients has been reviewed with special attention to etiologic factors in the domestic accidents.

2. The vulnerability and need for protection of the young, the old and the handicapped are confirmed.

3. The major single factor in the cause of severe burns was the ignition of clothing.

4. The commonest single source of ignition was the inadequately guarded open flame of gas heating appliances.

5. The findings confirm that the vast majority of domestic burns are preventable. Preventive measures suggested by the data are multiple but in general fall into four categories:

a) Better design and guarding of heating appliances, enforced by public opinion and law.

b) Safer clothing by fireproofing or substitution plus changes in design or style—with similar public suport.

c) Better design of hot liquid containers, kitchens, houses, etc.

d) Further education of the public concerning the need and methods for protection of certain individuals as well as the dangers of inflammable clothing, misuse of combustible liquids, etc.

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# OKLAHOMA COUNTY HEART ASSOCIATION

## Cardiovascular Meeting

Monday, November 30, 1959 Oklahoma Medical Research Foundation

**Dinner 6:00 p.m.**

**($2.00)**

**Program 7:00 p.m.**

"Some Recent Thought on the Relationship
Between Serum Lipid and Atherosclerosis"

Robert H. Furman, M.D., Associate Director Research and Head of the Cardiovascular Section of the Oklahoma Medical Research Foundation

"Hemodynamic Factors in Atherosclerosis"

and

"Maintenance of Pulmonary Arterial Medial Hypertrophy in Newborn Pups"
Gill Campbell, M.D., Professor of Surgery, Oklahoma University Medical Center

Robert H. Bayley, M.D., Program Chairman

**Lingual Carcinoma presents a dual problem of early detection and prompt treatment. Cooperation between the radiologist and surgeon in advanced cases is advocated in the best interest of the patient.**

# CANCER OF THE TONGUE*

## An Analysis of 50 Cases

**CLARK A. GRIMM, M.D.**

Clark A Grimm, M.D., a 1957 graduate from Washington University School of Medicine in St. Louis, is now a resident in radiology at the University of Oklahoma School of Medicine.

Doctor Grimm has been a Trainee of the National cancer Institute since August, 1958.

This paper was presented at the meeting of the Oklahoma Association of House Staff Physicians on May 22, 1959.

ALTHOUGH there is valid statistical evidence that the relative incidence of lingual cancer is decreasing, this neoplasm claimed more than 3,000 lives in the United States in 1958. Cancer of the tongue causes more deaths each year than any other neoplasm of the head and neck. In terms of prevalence this disease presents an important diagnostic and therapeutic problem.

This paper is an analysis of all the cases of lingual cancer treated at the University of Oklahoma Hospitals from 1946 through 1958. Fifty patients who were diagnosed, treated and subsequently followed at this institution are included. The primary purpose of this study was to compare our results, particularly in respect to radiation therapy, with those of larger, statistically significant studies in the literature.

Oral neoplasms occur more frequently in the male, and cancer of the tongue is no exception. Forty of our patients were men. It is well documented that the occurrence of lingual carcinoma is most commonly seen in the older age groups. The average age at the time of diagnosis was 69 years for women, 68 years for men. The oldest patient was 89; the youngest 44. More patients were in their 70's than any other decade.

An awareness of an oral mass or ulcer was the most frequent presenting complaint, especially when the lesions involved the anterior two-thirds of the tongue (figure 1). Some degree of pain or burning was almost invariably present. Cancers of the posterior one-third and base of the tongue often presented with more ominous symptoms, such as otalgia, dysphagia, nodes in the neck and dysphonia. One patient had no complaint referable to the oral cavity; a small nodule was noted on routine physical examination in the outpatient clinic.

The hospital records of all patients were examined for factors which have been incriminated as probably predisposing to cancer of the tongue (figure 2). Excessive

*From the Department of Radiology, University of Oklahoma Hospitals.

**SYMPTOMS WHEN FIRST SEEN**

| | |
|---|---|
| Painful Ulcer or Nodule | 37 |
| Mass in Neck | 11 |
| Dysphagia | 9 |
| No Oral Complaints | 7 |
| Bleeding | 6 |
| Pain in Jaw and/or Ear | 4 |
| Excessive Weight Loss | 4 |
| Painless Nodule | 3 |
| Asymptomatic | 1 |

Fig. 1

**PREDISPOSING FACTORS**

| | |
|---|---|
| Nicotine (all forms) | 18 |
| Poor Oral Hygiene and/or Carious Teeth | 13 |
| Local Trauma | 6 |
| Leukoplakia | 8 |
| Syphilis | 6 |
| None Known | 17 |

Fig. 2

use of tobacco, particularly snuff and chewing tobacco, and unusually poor oral hygiene were mentioned in over half the charts. Six patients were found to have positive serologies. Leukoplakia was described in eight cases. No known etiological factor was identified in a third of the patients. In figure 3 is seen the division of lesions between the mobile and non-mobile portions of the tongue. Of the 29 cancers on the anterior two-thirds, 21 involved a lateral border.

The incidence of lymph node involvement is illustrated in figure 4. Twenty per cent of lesions occurring on the anterior tongue and 85% involving the posterior tongue had obvious metastases before a diagnosis was made. Overall, it is seen that 64% had regional adenopathy when first seen. The distressing number of patients with clinically apparent metastases emphasizes the advanced stage of disease all too frequently seen. Survey of other studies reveals that an average of 40% of all patients with cancer of the tongue have regional adenopathy at the time of diagnosis.

The clinical staging of lingual cancer has always been a difficult and discouraging task. This disease does not lend itself to stereotyped staging. It is not uncommon to see a patient with massive cervical adenopathy in whom an exhaustive search is necessary to locate a tiny primary at the base of the tongue. Conversely, lesions virtually replacing the tongue may be confined to that organ and thus be amenable to therapy. As a result of this clinical uncertainty, the literature abounds with complicated, often confusing, staging techniques.

For the sake of simplicity, the 50 patients in this study have been placed in three broad categories. Stage 1 lesions are less than 2 cm., situated on the anterior two-thirds and show no evidence of oral extension or distant metastases. Stage 2 lesions are larger than 2 cm., may be on the posterior dorsum of the tongue but do not involve the base. Limited local invasion and unilateral cervical adenopathy may be present. Stage 3 lesions have been subdivided into two groups. Stage 3a patients have far advanced local lesions with extension across the midline, or to the floor of the mouth, or to the tonsillar fossa. Multiple metastases are usually present. Stage 3b cancers involve the base of the tongue and such lesions are

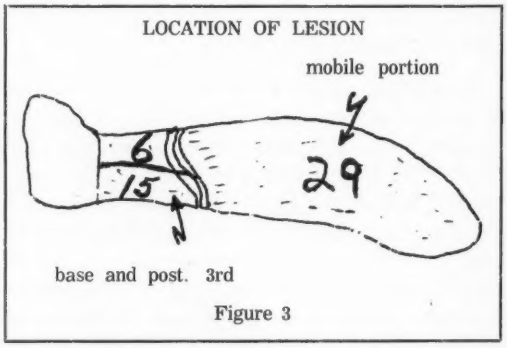


Figure 3

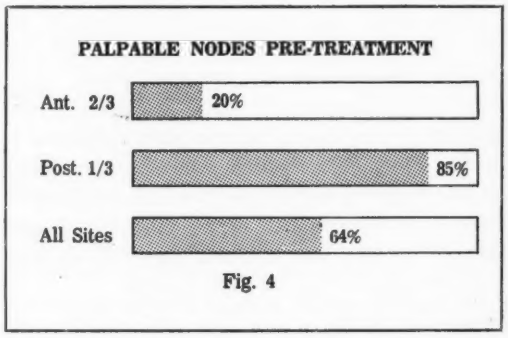


Fig. 4

**TREATMENT OF STAGE 1 CANCER**

| | |
|---|---|
| Total No. | 11 |
| No. Treated | 11 |
| Living and Well | 7 |
| Living With Cancer | 1 |
| Died Without Cancer | 2 |
| Died With Cancer | 1 |
| Cures | 9 (82%) |
| Failures | 2 |

Fig. 5

placed in this category regardless of degree of local or distant disease.

This system of classification has proved quite effective in staging the 50 patients in this series. From the prognostic standpoint, the critical factor is the presence or absence of cervical nodes. The grave prognosis of patients with stage 3 lesions is independent of the most optimum treatment.

The results of treatment have been determined according to the stage of the patient when first seen. Two of the 50 in this series received no definitive treatment; they are included because the diagnosis of cancer was made at this institution and the patients were subsequently followed throughout their terminal course.

A synopsis of the patients in stage 1 is seen in figure 5. Only 11 patients are in this group, all of which were treated. Eight are living, and seven of these have no evidence of cancer. Three have died, two without residual disease. The cure rate for stage 1 lesions then is 82% of this small group.

**TREATMENT OF STAGE 2 CANCER**

| | |
|---|---|
| Total No. | 9 |
| Not Treated | 8 |
| Living and Well | 3 |
| Living with Cancer | 0 |
| Died without Cancer | 1 |
| Died with Cancer | 5 |
| Cures | 4 (44%) |
| Failures | 5 |

Fig. 6

Nine patients with stage 2 lesions were seen, but one man refused treatment. His course was progressive and he died 14 months after diagnosis was made. Three of the nine patients are living and well. Of the six who have died, only one did not have residual or metastatic cancer (figure 6).

The majority of patients in this series fall into the stage 3 category. Fifteen were 3a and 15 were 3b. One patient was terminal and died before treatment could be begun. Twenty-five of 29 treated are dead. All had evidence of cancer at the time of death and most of them died as a direct result of their primary disease (figure 7). Of the four still living, one has far advanced local and metastatic disease. The three apparent cures represent a salvage rate of only 10% of the stage 3 patients.

**TREATMENT OF STAGE 3 CANCER**

| | |
|---|---|
| Total No. | 30 |
| No. Treated | 29 |
| Living and Well | 3 |
| Living with Cancer | 1 |
| Died without Cancer | 0 |
| Died with Cancer | 25 |
| Cures | 3 (10%) |
| Failures | 26 |

Fig. 7

The overall cure rate at this time, then, is 16 of 50, or 32%, which compares favorably with results of other, much larger series. A survey of the literature reveals that a salvage rate of 25% is all that can be expected if all patients, irrespective of stage are considered. When only lesions of the anterior tongue are included, the results are more encouraging. Twenty-nine patients in this series presented with cancer of the mobile tongue. There are 13 apparent cures, a 40% salvage rate if all survive five years. The results of a few representative studies are reproduced in figure 8.

Of the 16 patients in this series who are tentatively classified as cures, 14 are living and well and two have died without evidence of cancer. The two deaths survived eight and 45 months respectively. The remaining 14 have survived an average of 45

months, with extremes of eight and 85 months. It cannot be assumed that all of the survivors will remain free of disease. Of significance, however, is the fact that 12 of the 14 are now more than 28 months post-treatment.

As would be expected, the chief therapeutic approach in these patients was radiation therapy. Of the 48 actually treated, irradiation in some form was the primary treatment in 34. Eleven were operated on and three received a combination of surgery and irradiation. Radiation therapy included external x-ray, radium needle implantation, and, in a few instances, radon seeds. Of those treated surgically, hemiglossectomy plus some form radical jaw neck procedure was performed on nine. Eight of the 11 treated surgically were in stages 1 and 2.

**5 YEAR SURVIVAL—ANT. 2/3**

| Series | No. | Survival |
|---|---|---|
| Radium Inst. (Paris) | 494 | 276 (56%) |
| Windeyer (London) | 144 | 40 (28%) |
| Memorial Hosp. (New York) | 556 | 124 (22%) |
| Radiumhemmet (Sweden) | 235 | 70 (30%) |
| Toronto Univ. | 342 | 115 (33%) |

Fig. 8

A summary of stage 1 lesions is seen in figure 9. Patients considered as cures have either died of unrelated disease without cancer or have survived at least eight months post-treatment without recurrence of metastasis. In this group with limited disease, irradiation and surgery were equally effective. The last column in figure 9 indicates the average number of months which the apparent cures have survived. The one patient in whom irradiation failed developed cervical metastases 18 months after treatment.

Of the nine stage 2 lesions, only four have shown no evidence of persistant disease (figure 10). The three irradiation survivors are 42, 58 and 51 months post-therapy. The apparent surgical cure died in congestive

**RESULTS IN STAGE 1 CANCER**

| Therapy | No. | Cures | Failures | Surv. (mos) |
|---|---|---|---|---|
| Irrad. | 5 | 4 | 1 | 49 |
| Surgery | 5 | 4 | 1 | 52 |
| Comb. | 1 | 1 | 0 | 28 |

Fig. 9

heart failure eight months after a radical procedure in which no neoplasm was found in the operative specimen. It is assumed that biopsy in this case was curative. There is only one surviving stage 3a patient, a 55 year old man who is well 27 months after operation (figure 11). The 12 patients treated with irradiation survived an average of nine months.

The 15 patients with base of tongue lesions are depicted in figure 12. The man treated with irradiation to the primary lesion followed by a neck dissection is living and well after 58 months. The surviving irradiation patient is 12 months post-therapy.

An important consideration in the evaluation of the effectiveness of cancer therapy in an advanced age group is the degree of control of the primary lesion. The purpose of irradiation in virtually all of the patients with stage 3 cancer was palliation. It must be emphasized that many of these patients had exceeded their life expectancy when the diagnosis of lingual cancer was made. The inevitable, expected attrition rate in patients of this age reduces the significance of absolute five year survivals and magnifies the importance of reasonable palliation. A careful study of each chart was made to determine the ultimate effectiveness of radiation therapy. Of 24 stage 3 patients, 17 had good palliation, measured by control of the pri-

**RESULTS IN STAGE 2 CANCER**

| Therapy | No. | Cures | Failures | Surv. (mos) |
|---|---|---|---|---|
| Irrad. | 5 | 3 | 2 | 50 |
| Surgery | 3 | 1 | 2 | 8 |

Fig. 10

**RESULTS IN STAGE 3a CANCER**

| Therapy | No. | Cures | Failures | Surv. (mos) |
|---|---|---|---|---|
| Irrad. | 11 | 0 | 11 | — |
| Surgery | 3 | 1 | 2 | 27 |
| Comb. | 1 | 0 | 1 | — |

Fig. 11

**RESULTS IN STAGE 3b CANCER**

| Therapy | No. | Cures | Failures | Surv. (mos) |
|---|---|---|---|---|
| Irrad. | 13 | 1 | 12 | 18 |
| Comb. | 1 | 1 | 0 | 58 |

Fig. 12

mary lesion, regression of regional disease, at least temporary relief of presenting complaints and apparent prolongation of life. When stage 1 and stage 2 lesions are included, a total of 80% of the patients treated by irradiation are either living and well or have died without evidence of residual cancer in the tongue.

It is the contention of this paper that cancer of the tongue is best treated by radiation therapy. If cancer is restricted to the confines of the tongue, radical surgical treatment will be curative, but the resulting cosmetic defect and functional disability are undesirable; furthermore, equally good results with irradiation make the unavoidable hazards of surgery unnecessary. If cervical metastases are clinically present, the treatment of choice appears to be a neck dissection after the primary lesion has been effectively controlled by radiation therapy.

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ALLIANCE, *n.* In international politics, the union of two thieves who have their hands so deeply inserted in each other's pocket that they cannot separately plunder a third.

*From the Devil's Dictionary by Ambrose Bierce*
—Sagamore Press, Inc.

**This provocative paper written in the form of a clinicopathologic conference, furnishes us with needed information on a notoriously blind diagnostic spot.**

*Clinicopathologic Conference**

# Abdominal Cramps, Vomiting, Shock and Unexpected Death

**LEO LOWBEER, M.D.**
**MUIR CLAPPER, M.D.**
**PAUL WERMER, M.D.**

Leo Lowbeer, M.D., graduated from the University of Vienna Medical School in 1927. He is certified by the American Board of Pathology and is now Chief Pathologist, at the Hillcrest Medical Center, Tulsa, Oklahoma and Visiting Lecturer, Department of Pathology, at the University of Oklahoma School of Medicine.

Doctor Lowbeer is a member of the American Association of Pathologists and Bacteriologists, the American Society of Clinical Pathologists, the College of American Pathologists, and the International Academy of Pathology.

## Clinical Summary

*History.* A 58-year-old man was admitted to the hospital with chief complaints of persistent abdominal cramps, nausea, and loss of weight during the preceding three weeks.

The patient had hemorrhoids removed seven years prior to this admission, but otherwise he was in good health until three weeks prior to admission. At that time he suddenly developed generalized, cramping, abdominal pain, associated with vomiting and numerous loose stools. He received medicine from his physician the following day, and the pain, vomiting, and diarrhea ceased. However, a week later he experienced colicky abdominal pain, was nauseated, and occasionally vomited. The patient remained anorectic, and he lost 16 pounds during the three weeks between the onset of illness and admission to the hospital.

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*Reprinted through the courtesy of the editors of THE AMERICAN JOURNAL OF CLINICAL PATHOLOGY, Vol. 26, No. 6, June 1956.

*Physical examination.* The patient was emaciated and dehydrated, and he seemed to be chronically ill. His blood pressure was 124/72, pulse rate 80 and respirations 18 per minute, and the temperature 99.4 F. Examination of the head and chest revealed no abnormal findings. The abdomen was scaphoid and rigid, but was not tender, and the abdominal organs were not palpable. Neurologic examination also revealed no abnormalities.

*Laboratory findings.* Urinalysis revealed a specific gravity of 1.020 and a trace of

albumin. There were 3,460,000 erythrocytes per cu. mm. and 11.1 Gm. of hemoglobin per 100 ml. of blood. The white cell count was 3,500 per cu. mm., with band forms 7 per cent, segmented neutrophiles 41 per cent, eosinophiles 3 per cent, lymphocytes 39 per cent, and monocytes 10 per cent. The Kline test was negative. Gastric analysis revealed no free hydrochloric acid after alcohol, and there were 22 degrees of total acidity after 45 minutes. Tests for occult blood were positive on gastric contents, but negative on stools. Roentgenographic examinations of the gastrointestinal tract and gallbladder were normal.

*Course in the hospital.* Following medication the patient was no longer nauseated, but he complained of severe, persistent headaches. Occasional enemas and laxatives were required to relieve constipation. Two weeks after admission there were several one-day episodes of severe vomiting, but his appetite was fair. There were occasional elevations of temperature to 99.4 F., but it was generally sub-normal, as low as 97 F. During the administration of vitamin $B_{12}$ and extract of liver, the red cell count rose to 4,190,000 per cu. mm., the hemoglobin to 12.5 Gm. per 100 ml., and the white cell count to 6,400 per cu. mm. Owing to increasing complaints of pain in the lower back, roentgenograms of the lumbar spine were made, and these revealed generalized demineralization of bone and changes of arthritis. Cortisone and estrogen were administered, and the patient was dismissed in improved condition after three weeks of hospitalization. His appetite was fair but he had not gained weight. At this time the clinical diagnoses were: acute gastroenteritis, healed; pernicious anemia in therapeutic remission; lumbar spondylarthrosis.

*Second admission to the hospital.* The patient was brought back to the hospital three days later in a semicomatose condition. His wife stated that he had started to vomit severely the day before, and complained of "burning" substernal and epigastric pain that persisted for a day. He passed a tarry stool, and later became irrational. When the patient was brought to the hospital, he was restless, emaciated and semicomatose, and he reacted only to painful stimuli. The blood pressure was not obtainable, the pulse rate was 96 per minute, and his respirations were irregular and slow. The pupils responded poorly to light, but corneal reflexes were not impaired. Auscultation revealed heart sounds that were distant, and no murmurs were heard. The abdomen was scaphoid, fairly rigid, and not tender to palpation.

The red cell count was 5,850,000 per cu. mm., and the hemoglobin 16.7 Gm. per 100 ml. The white cell count was 14,050 with band forms 24 per cent, segmented neutrophiles 52 per cent, and lymphocytes 24 per cent. The patient did not pass any urine, and the urea nitrogen in the blood was 59.5 mg. per 100 ml. An electrocardiogram revealed a sinus tachycardia with a rate of approximately 140 per minute. Nonspecific ST segments and changes in the T waves were regarded as suggestive of diffuse ischemia of the myocardium. The patient was treated for shock, but he responded poorly, and remained anuric and comatose. His temperature rose terminally to 103.8 F., and he expired 13 hours after the second admission, less than two days after the onset of the second acute episode, or approximately six weeks after the onset of his illness.

### Discussion and Clinical Diagnosis

*Doctor Muir Clapper.* The diagnosis suggested by observations during the first admission are: (1) a gastrointestinal disorder with insufficient evidence for localization; (2) possible pernicious anemia. The latter diagnosis would be more certain if it were supported by the findings of a megaloblastic bone marrow and histamine-refractory achlorhydria rather than alcohol-achlorhydria. Leukopenia and the apparent response to vitamin $B_{12}$ and liver extract are consistent with the diagnosis of Addisonian anemia, which could contribute to the gastrointestinal symptoms. The pain in the lumbar region of the back is not adequately explained.

The second admission is obviously more dramatic. "Burning" epigastric and retro-

sternal pain (the length of the sternum), a tarry stool, shock, and death must be explained. A tarry stool indicates bleeding from the upper part of the gastrointestinal tract and, if there is sufficient bleeding, this could certainly explain shock. Although the distribution of the pain and the state of shock are consistent with myocardial infarction, the character of the pain and the electrocardiogram (assuming that it does not reveal incomplete block of the left bundle-branch) are strong evidence against such a diagnosis. Dissecting aneurysm must be considered, inasmuch as gastrointestinal hemorrhage has been reported in that condition. However, the lack of previous hypertension does not support that diagnosis, and there is no mention of absent peripheral pulses, a blowing diastolic aortic murmur, or a precordial rub. Therefore, it seems advisable to eliminate that possibility.

The "burning" epigastric and retrosternal pain is suggestive of involvement of the esophagus, but it could also be the result of an acute mediastinitis. I am inclined to think that the patient had a lesion in the cardiac portion of the stomach, with extension into the lower end of the esophagus, or a lesion in the lower end of the esophagus. Hemorrhage from such a lesion might cause a tarry stool, and perforation into the mediastinum could produce acute mediastinitis, with shock developing primarily on that basis. The relatively high red cell count and value for hemoglobin, and the paucity of evidence of external bleeding, would lead one to think that the state of shock was not caused by loss of blood.

A carcinoma of the cardia of the stomach, complicating pernicious anemia, could have been missed in the roentgenographic examination of the gastrointestinal tract, and such a lesion may perforate into the lower mediastinum. Metastatic carcinoma in the lumbar spine would explain the backache, and it is not unexpected that x-ray films would be negative early in the course of metastases to bone. An esophagitis developing from regurgitation of gastric secretions may also have perforated and bled, and I have seen nontraumatic perforation of a previously normal esophagus. Subcutaneous emphysema in the tissues of the neck is not mentioned, but the examiner may not have looked for it, and it is not an invariable accompaniment of perforation of the esophagus. If it were present, it could be detected in x-ray films, but apparently it was thought not advisable to move the patient for such an examination.

The negative findings in the examination of the abdomen virtually exclude the possibility of perforation into the peritoneal cavity. From the description of the electrocardiogram, I assume that the ST segments were depressed, and the sub-endocardial ischemia may have resulted from shock. If the ST segments were elevated and the T waves inverted, the changes could have been caused by pericarditis that was secondary to mediastinitis, or by the rupture of a dissecting aneurysm into the pericardial sac. It is unlikely that a peptic ulcer of the esophagus would occur when there is achlorhydria. Finally, I would also consider the possibility of pancreatitis, with extension of the necrotic process to involve the mediastinum.

In conclusion, I believe that the cause of this patient's illness and death was the rupture of the esophagus into the mediastinum, resulting in acute mediastinitis. I am inclined to think that carcinoma of the cardia of the stomach, with extension into the lower esophagus, was the most likely cause for this perforation, but rupture of the esophagus as a result of esophagitis or primary carcinoma must also be considered. Pernicious anemia may have been associated with the patient's illness, but this disease probably was not part of the terminal symptoms or his death. If this man did not have pernicious anemia, the acute mediastinitis could have been the result of perforation of a peptic ulcer of the esophagus caused by administration of cortisone.

*Doctor Paul Wermer.* I would regard the first seven weeks of this patient's illness as an acute gastroenterocolitis of unknown origin. Regional enteritis would ordinarily be

a plausible explanation for the diarrhea not accompanied by fever, but the ileum seemed to be normal according to the radiologic examination. A tumor of the small intestine could have produced vomiting and diarrhea, but such a lesion probably would have resulted in a positive test for occult blood in the stool. There are no data from tests to determine the sedimentation rate, the level of alkaline phosphatase, cephalin flocculation, or the amounts of serum proteins, and such information would make it possible to distinguish more easily between a banal gastroenteritis and a systemic disease with manifestations in the gastrointestinal tract. It seems to me that the diagnosis of pernicious anemia is not strongly supported, inasmuch as a mild normochromic anemia and achlorhydria were the only positive findings. In addition, the presence of 10 per cent of monocytes in the peripheral blood would be most unusual in pernicious anemia. I suspect that whatever caused the gastrointestinal symptoms also caused the anemia, but I cannot suggest a more likely diagnosis than acute gastroenteritis.

The terminal episode seems to represent the classic signs and symptoms of rupture of the lower portion of the esophagus, probably on the left side, and probably the result of vomiting. The patient had no angina on effort, and it would be unusual to have thrombotic occlusion of a coronary artery and an infarct of the myocardium as the first manifestation of coronary arteriosclerosis. The marked shift to the left in the leukocytes may indicate a "surgical disease," and the electrocardiographic changes are consistent with what would be expected in shock. Unfortunately, it is not uncommon that "spontaneous" rupture of the esophagus is mistaken for a myocardial infarct. In making a diagnosis of this patient's illness, I believe it is helpful to direct considerable attention to his medical history, which is characteristic of that usually associated with rupture of the esophagus. I have not observed tarry stools from persons with a ruptured esophagus, but this feature does not raise serious question inasmuch as the test for occult blood in the feces was negative.

**Pathologic Findings**

*Doctor Leo Lowbeer.* Postmortem examination (nine hours after death) revealed an emaciated body with no icterus, cutaneous rash, or subcutaneous edema. The weight of the brain was increased to 1550 Gm. owing to cerebral edema. The leptomeninges and brain were congested, and there was moderate dilatation of the lateral ventricles. Except for small patches of arteriosclerosis in the coronary arteries, no abnormalities were observed in the heart, the lungs and pulmonary vessels, or in the upper part of the respiratory tract. Similarly, no pathologic changes were found in the esophagus or adjacent mediastinal tissues. The lumen of the stomach contained a small amount of cloudy, green, odorless fluid, and the mucosa was moderately hyperemic, but no erosions or ulcers were observed. There was advanced hyperemia of the mucosa in the duodenum, the upper part of the jejunum, and throughout the ileum and colon. In addition, petechiae were present in the mucosa of the duodenum and upper part of the jejunum. The lumen of the colon contained fluid and semi-fluid, yellow, fecal material, but there was no evidence of blood. The fecal material in the rectum was soft and formed. No ulcers were found in the small or large intestine, the lumen was not dilated, and there was no evidence of inflammation on the serosal surface. The liver was slightly enlarged (1700 Gm.), and the spleen was small (110 Gm.) and firm. No significant anatomic changes were found in the pancreas, kidneys, adrenal glands and other abdominal organs. Examination of several bones revealed marrow that seemed to be normal, and the marrow in the femur was fatty.

Owing to (1) the absence of lesions that would be of help in explaining the death of this patient, and (2) the advanced congestion of the gastrointestinal tract, together with the history of two episodes of acute gastroenteritis followed by vascular collapse, it seemed highly important to perform bacteriologic and toxicologic studies. Consequently, gastric and intestinal contents and portions of several organs were

sent to the State Health Department for toxicologic analyses, particularly for the content of arsenic. Cultures of fecal material from the colon yielded growth of *Proteus morganii, Klebsiella pneumoniae, Streptococcus zymogenes* (beta hemolytic enterococcus), and *Escherichia coli.*

Histologic examinations revealed advanced congestion of submucosal veins in the intestines (Figs. 1 and 2), associated with edema of the mucosa and a moderate increase in mononuclear inflammatory cells. Fatty metamorphosis was observed in the liver, and hepatic cells around central veins were necrotic. In addition, the changes of brown atrophy were noted. There was advanced fatty degeneration of the renal tubular epithelium and in the myocardium, which also contained small accumulations of lymphocytes and small foci of fibrosis, although no sclerotic changes were noted in the branches of the coronary arteries. The cortical cells of the adrenal glands were depleted of lipid. No further changes were noted histologically except for congestion of the cerebral, leptomeningeal, and renal blood vessels.

The toxicologic examination provided the solution to this riddle in pathologic diagnosis. Significant amounts of arsenic were found in the liver, the contents of the stomach, the wall of the stomach, and in the brain. The liver contained 2.8 mg. of arsenic (as arsenic trioxide) per pound; the total content of arsenic in the liver was estimated as 10.64 mg., or six times the maximal normal amount of arsenic that may be expected in the liver (0.1 mg. per 100 Gm., or 1.7 mg. for a liver of this size). The wall of the stomach contained 0.3 mg. of arsenic, the contents of the stomach 0.5 mg., and the brain 0.08 mg. of arsenic per pound (total content in the brain estimated as 0.28 mg.). These values are significant inasmuch as arsenic is not normally present in the brain, or the stomach and its contents. The gross and microscopic findings of advanced mucosal and submucosal congestion (without corrosion) are characteristic of arsenical gastroenteritis, and the toxic necrosis of central portions of hepatic lobules is consistent with the lesions observed in subacute poisoning with arsenic. Based on the anatomic and toxicologic findings, a final diagnosis of acute and subacute poisoning with arsenic was made. The pathologic findings were submitted to the County Attorney in order that he might conduct an investigation. After prolonged questioning, the patient's wife (incidentally, she had signed the autopsy permit) confessed to having poisoned her husband with arsenical rat poison. Two doses were given (the first in prunes and the second in coffee), and each was followed promptly by gastroenteritis as described in the history. The woman also confessed that she had poisoned three former husbands with arsenic. The bodies were buried in three different states, but they were exhumed, and significant amounts of arsenic were detected in all three, several years after death.

### General Discussion and Clinicopathologic Correlation

A discussion of several points related to poisoning with arsenic seems to be in order.[1-5] Arsenic is poisonous in gaseous form and in certain inorganic and organic compounds, but not in metallic form. Inasmuch as this patient ingested arsenic as an inorganic compound, only that type is considered here.

The principal inorganic arsenical compound in rat poisons, fly papers, and garden sprays is arsenic trioxide. It is a heavy, white powder that has no distinctive odor or flavor, and it is easily obtainable in stores. Consequently, this poison is comparatively common in homicidal and accidental cases of poisoning.

The toxic action of arsenic is two-fold: (1) it produces paralysis of capillaries particularly the splanchnic capillaries, and (2) it poisons protoplasm (affecting the liver, brain and other organs) by combining with and inactivating respiratory enzymes that contain sulfhydril groups, thereby preventing respiration in the tissues. The minimal fatal dose is usually regarded as two to three grains (0.15 to 0.2 Gm.), but tolerance can be built up gradually by those who use

it habitually as a stimulant (Styria's arsenic eaters). The poisonous effect of arsenical compounds depends on the dose, the speed and quantity of absorption, and the speed and quantity of elimination (through vomiting, diarrhea or lavage). Four principal types of poisoning with arsenic are recognized, *i.e.*, the acute paralytic, the acute gastrointestinal, the subacute, and the chronic types.

The *acute paralytic* form usually occurs after rapidly absorbed, large doses that cause profound circulatory collapse, stupor, and convulsions; death frequently occurs within 24 hours, probably the result of the overwhelming effect on the medullary nervous centers; vomiting and diarrhea may or many not be present. The postmortem anatomic findings may be negative, or there may be moderate hyperemia of the gastric mucosa, with or without slight corrosion. The diagnosis can be proved by toxicologic examination of the viscera and the contents of the stomach. The discrepancy between the negative or scant anatomic findings and the clinical state of profound shock is significant. This patient seems to be an example of the acute paralytic poisoning with arsenic, with death resulting from the second and fatal dose of administered arsenic.

The *acute gastrointestinal* type is the form of arsenical poisoning observed most commonly. The prominent symptoms are epigastric "burning" and vomiting, followed in one to two hours by rice-water-like diarrhea. Occasionally, there is a garlic-like odor to the breath. Oliguria and shock are sometimes observed, but death may not occur for hours, days, or weeks after ingestion, or the patient may survive if elimination is complete. Arsenic may be stored for several weeks in the liver, kidneys, and spleen, and slow release with reabsorption into the intestional tract sometimes causes persistent symptoms. Postmortem examination of persons who die soon reveals scant changes, sometimes consisting only of hyperemia of the gastrointestinal mucosa, and corrosion is absent or only slight. On the other hand, in patients who died after days or weeks there usually is: (1) advanced congestion

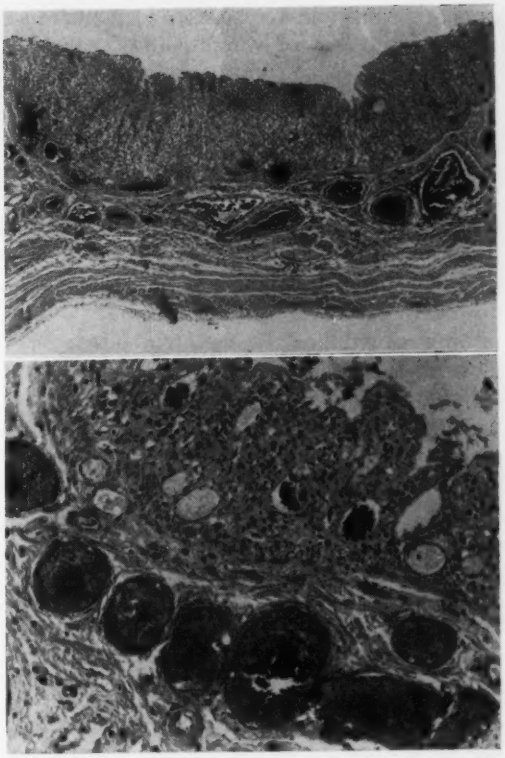

Fig. 1 (upper). Wall of the stomach with advanced hyperemia of blood vessels in the mucosa and submucosa. Hemotoxylin and eosin. X20.

Fig. 2 (lower). Wall of the jejunum with intensive hyperemia of blood vessels in the mucosa and submucosa. Hematoxylin and eosin. X120.

of the gastrointestinal mucosa with submucosal hemorrhages; (2) degenerative changes in the heart, the kidneys, and the liver, with or without necrosis of hepatic cells; and (3) scattered petechiae. These changes probably result from reabsorption of arsenic, rather than from direct contact.

The *subacute and chronic* types of poisoning with arsenic are caused by successive, small doses or by a single large dose with relatively adequate elimination. This form of arsenical poisoning may persist for weeks or months, and the patient may have one or more of the following manifestations of illness: (1) chronic gastroenteritis; (2) subacute necrosis of the liver with icterus; (3) chronic neuritis with paralysis, anesthesias, trophic changes, and amblyopia; (4) cutan-

eous eruptions and keratoses; (5) nephrosis; (6) anemia, loss of weight, and weakness.

Arsenic is stored in the skin, hair, and bones, and it is possible to identify it by analysis of tissues even years after death. Arsenic inhibits postmortem putrefactive changes in the body, and, for that reason, it has been used in certain embalming fluids. The law in several states prohibits this, however, inasmuch as use of arsenic-containing embalming fluids invalidates postmortem chemical analysis for arsenic in instances where arsenical poisoning is suspected. Unusually good preservation of viscera sometimes may be a clue that suggests the possibility of arsenical poisoning.

It seems likely that the initial symptoms of the patient, *i.e.*, abdominal cramps, nausea, vomiting, and diarrhea, were caused by the first dose of arsenic, administered in prunes. The patient did not die at that time, probably owing to elimination of most of the arsenic administered—or the dose may not have been sufficiently large. Persistent symptoms (such as severe headache, anorexia, loss of weight, nausea, occasional vomiting, and anemia) indicate that arsenic may have been stored in various organs, after which it was gradually released and eliminated. The central necrosis in the liver supports this postulation. Nevertheless, the patient was in rather good condition when dismissed from the hospital six weeks after the administration of the first dose. Then the patient's wife administered a second, presumably larger dose of arsenic in coffee, and this was followed by the second episode, consisting of vomiting, epigastric "burning pain," diarrhea, vascular collapse, coma, and death.

The possibility of arsenical poisoning should be considered in cases of acute or subacute gastroenteritis, particularly when there is evidence of prolonged general toxicity or an unusual degree of circulatory collapse. It seems certain that many cases of poisoning with arsenic are not detected. In New York City 272 cases of arsenical poisoning occurred in 33 years, and, of those in which arsenic was identified, the great majority was accidental or suicidal. Only 13 (five per cent of the total) were classified as homicidal cases. The actual number of homicidal poisonings with arsenic is probably higher.

Several astute internists were consulted with regard to this patient, but none of them suspected arsenic or any other poison, nor was such a diagnosis suggested by the attending physicians. Therefore, this case of fatal poisoning with arsenic is presented as a clinicopathologic conference in order to draw attention to the characteristic features of an entity that probably occurs more frequently than it is recognized.

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MEDICAL CENTER

## Message from the Dean

### University Medical Center Management

The duties of the director or dean of a university medical center are threefold. First, as a delegate of the President of the University, he must be ever cognizant of the President's authority regarding all matters, and he must uphold the university standards and regulations at all times. Second, as the ultimate executive for the entire Faculty, he must represent that faculty's opinions to the university authorities and to professional groups as well. Third, as administrator of a coalition of professional schools, hospitals, clinics, research enterprises, and graduate programs, he must be able to delegate authority to an administrative staff in order to successfully carry on this intricate operation.

Persons collectively involved in the administration of the center are a superintendent of hospitals, a dean or director for each academic area, associates for important special aspects of training and research, a skilled business administrator, and, in addition, heads of services such as personnel, public relations, official records, and physical plant functions. The task of the director is to coordinate the work of this staff efficiently, to weigh problems that arise in connection with the Faculty, students, employees, health agencies, dozens of accrediting groups, the practicing profession, and university and government representatives, with fairness and integrity, and to work tirelessly and devotedly for excellence in medical education. He must scrutinize his contemplated decisions and actions as to whether these judgments favor a spirit of understanding and fellowship, and a desire for progress in the medical center as a whole, and he must never act solely on his own impressions.

On the contrary, he must seek the help of those who are in a position to know more than he does about a given problem, and lend authority to those delegated with responsibility. In seeking from groups or committees advice which requires their time and endeavor beyond routine duty, he should effect the recommendations impartially, or be ready to give a realistic and logical explanation as to why he finds them lacking in some essential quality.

If worthwhile accomplishments are to be effected by the director of a university medical center, he will find it his intrinsic duty to be honest even when misunderstood, to remain unprejudiced by emotion or temperament which may distort perspective, to encourage a free and progressive academic atmosphere and good objectives where they are yet to be attained. There is also the matter of a faith, untarnished by daily irritations, in an ever better future for medicine and for medical services.

Mark R. Everett

**Be careful with that "lump"—it may be more than meets the eye and it matters how you treat it.**

# MALIGNANT SOFT TISSUE TUMORS
## A Ten Year Study from 1949 to 1959 at the University of Oklahoma Medical Center

**WILLIAM JAY WASKOWITZ, M.D.**

William Jay Waskowitz, M.D., graduated from Yale University School of Medicine in 1957. After a year's residency in general surgery, Doctor Waskowitz is now a second year resident in Orthopedic Surgery at the University of Oklahoma Medical Center.

MALIGNANT TUMORS of the soft tissues are among the most intriguing and perplexing neoplasms that confront the surgeon. Many excellent reviews[1,2,3,4,5] have been published on soft tissue neoplasms, and opinions differ widely on the treatment of these lesions. This paper is devoted to a review of patients with angiosarcomas, rhabdomyosarcomas, liposarcomas and fibrosarcomas who have been encountered at the University of Oklahoma Medical Center during the ten year period from 1949 to 1959. It is hoped that scrutiny of the medical course of this series of patients may lead to a better understanding and awareness of the problems involved. Only those patients with a definite pathological diagnosis are included. For the purpose of this study, the terms "local excision," "wide excision," and "radical excision" are used throughout and are defined as follows. Local excision means removal of the tumor just outside the palpable limits of the lesion; wide excision is the removal of the tumor extending at least an inch beyond all palpable and visual limits of the lesion; radical excision is removal of the tumor at or above the joint proximal to the lesion if the tumor was in an extremity, or wide excision and dissection down to and including underlying fascia and muscle. It is imperative to have an adequate biopsy of the lesion prior to definitive therapy. The frozen section has its limitations. It is better to have a permanent microscopic section. However, it should be stressed that definitive therapy should be instituted as swiftly as possible.

*From the Department of Surgery, The University of Oklahoma Medical Center, Oklahoma City, Oklahoma.*

### Angiosarcoma

Two patients with a diagnosis of angiosarcoma have been admitted to this Hospital in the past ten years. One patient had the angiosarcoma present at birth on the left

TABLE 1

TOTAL TREATMENT AND SURVIVAL

| Primary treatment—Average survival after primary therapy (months) | None | Local Excision | Wide Excision | Radical Excision | X-Ray Alone |
|---|---|---|---|---|---|
| ANGIO. | | | | | |
| No. Patients | — | — | 2 | — | — |
| No. Expired | | | 1 | | |
| Av. Survival | | | 3.5 | | |
| RHABDO. | | | | | |
| No. Patients | — | — | 3 | 1 | — |
| No. Expired | | | 2 | 1 | |
| Av. Survival | | | 11.3 | 3 | |
| LIPO. | | | | | |
| No. Patients | — | 9 | 7 | 3 | 1 |
| No. Expired | | 2 | 4 | 1 | 0 |
| Av. Survival | | 24.6 | 19.3 | 29 | 12 |
| FIBRO. | | | | | |
| No. Patients | 2 | 11 | 4 | 4 | 4 |
| No. Expired | 2 | 4 | 1 | 1 | 4 |
| Av. Survival | 4 | 49 | 59 | 67 | 8.5 |

lateral thigh, underwent operation at the age of two weeks, and did not survive the operative procedure. At autopsy there were metastases in the liver and lungs. The other patient was a 14-year-old male who first noted a mass on the left thigh six months prior to operation. Wide excision followed by x-ray treatment was employed. Four months postoperatively, metastases to the sacrum were noted. Seven months post-surgery, he is alive and receiving x-ray therapy to the sacral area (Table 1).

According to Landing and Farber,[6] angiosarcomas are usually slow-growing neoplasms that do not metastasize widely. The neoplasms in our two patients were just the opposite. Angiosarcomas "ultimately metastasize by way of the vascular system to lungs, liver, bone and other organs",[6] and may recur locally.

### Rhabdomyosarcoma

Four patients with rhabdomyosarcomas were admitted to this Hospital from 1949 to 1959. The ages of these patients ranged from 19 months to 66 years. All patients were dead within 18 months after operation, the average postoperative survival being 9.25 months. It should be noted that these patients had waited an average of 2.4 months before seeing a physician and had surgical treatment on the average of three weeks later. X-ray therapy did not prolong survival time. Our experience with these four rhabdomyosarcomas is very discouraging (table 1).Stout's statement made in 953 is still true today. "Too few cases cases have been studied to permit any definite statement about the best form of treatment, or about the efficacy of radiotherapy as adjuvant or replacement of surgery. One can only indicate that the ideal to be sought is wide removal or destruction of the tumor well outside of its palpable limits at as early a time as possible in the course of the disease."[7] Other authors have also done extensive work in the study of these tumors.[3,4,8,9,10,11] To this we must add that wide excision does not seem to be enough. This was done in three of our cases. It seems, therefore, that the only hope in the case of these patients is early radical extirpation. Radiotherapy, in conjunction with surgical removal in two of our cases, did little to prolong the course of the disease.

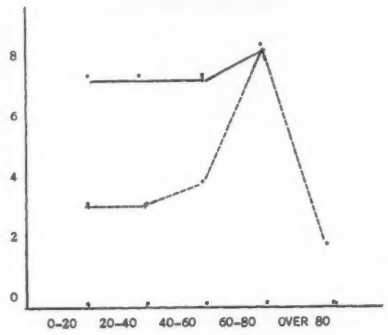
### Liposarcoma

During this ten year period, twenty patients with liposarcomas were encountered. Nine were females and eleven were males. The youngest was one day of age and the oldest was eighty-five years. The age distribution is graphically shown in Figure 1. Fourteen of the twenty tumors were in persons over forty years of age. The location of the primary tumor varied considerably, but the most common sites were in the thigh, gluteal area, chest wall and neck (table 2). Eleven, or 55%, of the neoplasms occurred in the lower extremity if the gluteal area is included.

Two time intervals were of particular interest. The first was the interval that lapsed until a physician was consulted. In three of the patients, this information was not available. Of the remaining 17 patients, the average interval was 43 months. However, this includes three cases of 35 years, 12 years and 7 years respectively. If these three cases are excluded, the average interval of the remaining 14 cases was six

FIGURE 1

AGE DISTRIBUTION OF LIPOSARCOMAS AND FIBROSARCOMAS




Age in Twenty Year Periods

——Fibrosarcomas
-----Liposarcomas

months. The second time interval of interest was that between the date a personal physician was consulted and the date of operation. In two of the patients this information was not available. Of the remaining 18 patients the average interval was 3.4 months. This drops to 1.5 months, however, if one patient is excluded with a three year waiting period.

TABLE 2

LOCATION OF LIPOSARCOMAS AND FIBROSCARCOMAS

| Site | Lipo | Fibro |
|---|---|---|
| The Preauricular Area | 1 | 2 |
| Lt. Breast | 2 | — |
| Gluteal Area | 2 | 2 |
| Anterior Chest Wall | 2 | — |
| Neck | 2 | 2 |
| Back | 1 | — |
| Lower Leg | 1 | 1 |
| Retroperitoneal | 1 | 6 |
| Thigh | 8 | 6 |
| Lower Arm | — | 1 |
| Foot | — | 2 |
| Abdominal Wall | — | 1 |
| Larynx | — | 1 |
| Diaphragm | — | 1 |
| Mandibular Area | — | 1 |
| Upper Arm | — | 2 |
| Primary ? With Metastases To Mediastinum | — | 1 |

Nine, or 44%, of those patients with liposarcomas had recurrences at the site of the primary tumor. Four, or 44%, who had local incision had an average recurrence time of 3.5 months, post-primary procedure. There were four recurrences following wide excision as the primary therapy, with an average time interval of eight months. There was one recurrence five months after primary radical excision. Four patients out of this total of twenty had multiple recurmary radical excision. Four patients out of this total of twenty had multiple recurrences. One case recurred 20 times. Three of these patients were those who had local excision as primary therapy. X-ray therapy was used in 13 patients. It was the sole treatment in one patient who at present has no signs of recurrence one year post-therapy. Four patients received x-ray therapy after wide excision, three patients after evidence of matastases, and five patients after just local excision.

The entire group of patients survived an average of 22.8 months post-primary therapy. Of the seven who have died in this series, the average postoperative interval until death was 13.8 months. Of the total 20 patients with a liposarcoma, there is adequate follow-up data on 15, or 75%. Of the other five cases, follow-up data was available from 9 months to six years post-therapy. Nine of the twenty, or 45%, had local excision as the first surgical procedure. This group had an average post-therapy survival of 24.6 months. Seven patients, or 35%, had wide excision as the primary therapy with an average post-therapy survival of 19.3 months. Three patients, or 15%, had radical surgery as primary therapy with an average post-therapy survival of 29 months (table 1). There seemed to be no satistically significant difference between the survival figures and their relation to primary therapy.

As noted by Stout,[7] the liposarcoma generally develops in the later years, and, next to the fibrosarcoma, it is the most frequent soft tissue sarcoma. Extensive work has been done in the study of this neo-

plasm.[1,2,12,13,14] The average interval of six months from first noting the tumor until the physician was seen seems quite a long wait. This plus the 1.5 months wait from the visit to the doctor until operation increases the true time of delay to 7.5 months. Nearly half, 45%, of these patients had local excision as the first definitive treatment. There was a recurrence at the site of the primary tumor in 45% of these patients. The fact that nearly half of the patients who had local excision had recurrences of their tumor indicates that local excisionis inadequate as the primary type of therapy for this lesion. However, there was no significant deference in survival time when comparing local excision, wide excision, and radical operation as the primary treatment. It is our opinion that early wide excision appears to be the best means of handling these tumors, although recurrence at the primary site may develop.

### Fibrosarcoma

Twenty-nine cases of fibrosarcomas were encountered and treated during this decade, of which eighteen were male and eleven were female. The ages of the patients ranged from 1½ to 75 years with a fairly even distribution (figure 1).

Twelve of these neoplasms occurred in an extremity (42%). Twenty-one per cent of the tumors were retroperitoneal in origin (table 2).

Two patients had no record of the time lapse between the patient's discovery of the lesion and his first visit to a physician. For the other 27 patients, the average elapsed time was 51.8 months. However, if five patients with 12, 23, 38, 7½ and 30 years' waits are excluded, the average for the other 22 patients is 3.2 months. After contacting the physician, the average length of time until operation of these 29 patients averaged 3.7 months with a range from one day to 35 months.

Thirteen of the 29 patients, or 45.5%, had local excision, four patients, or 14%, had wide excision, and four patients, or 14%, had radical surgery as the primary therapy. Six patients received primary x-ray therapy. Two patients received no treatment. Four of the six patients who received primary x-ray had retroperitoneal tumors. Eleven patients, or 38.5%, had recurrences at the primary site. All of these patients had first been treated by local excision. Of those lesions that were treated first by local excision, 83.6%, recurred at the primary site.

Of the original 29 patients adequate follow-up data has been gathered on 25 of these, or 86.2%. Of the four patients with insufficient follow-up data, two have had no follow-up data recorded at all. The other two patients have been followed 16 months and 24 months, respectively. These patients all were asymptomatic when last examined. However, since they have not been examined in the last six months, they are not included in the statistics. The average post-therapy survival for patients with adequate follow-up was 38.2 months. Of those 12 patients who died from their primary disease, the average post-treatment survival was 14.3 months.

The average post-primary therapy survival time for the above groups is as follows: local excision—49 months, wide excision — 59 months, radical excision — 67 months, excluding the case where amputation was done in the face of already present pulmonary metastases (table 1). Those patients who had x-ray therapy as the primary therapy were all dead within 20 months, and three of the four within seven months. All of the patients who had radical operation at the time of primary treatment are alive, excluding the one patient with pulmonary metastases. The average survival time of these three patients is 67 months, or 5.8 years, post-primary treatment.

The fibrosarcoma is the most common tumor of the soft tissues. The average elapsed time from discovery of the tumor until seeing a physician was 3.4 months and from then until operation an added 3.7 months for a total of 7.1 months from recognition of the lesion until treatment. This figure is close to the 7.5 month interval of the lipo-

sarcoma group. 45.3% of these patients had local excision as the primary treatment and of these 83.6% had recurrences at the primary site. One hundred per cent of all lesions that recurred had local excision as the primary treatment. Local excision, therefore, should be excluded as the primary treatment and early radical excision seems to be the most effective procedure.

## Summary

In the ten year period from 1949 to 1959, two patients with angiosarcomas, four patients with rhabdomyosarcomas, twenty patients with liposarcomas, and twenty-nine patients with fibrosarcomas were treated at the University of Oklahoma Medical Center. The results of treatment of these patients are presented as well as a brief discussion of each type of tumor. We conclude that, at the very least, these tumors should be treated by wide excision as the primary, definitive therapy. This should be done as soon as possible.

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Oklahoma Eye Bank has been accepted as an affiliate of the Eye Bank for Sight Restoration, New York City. Only 14 other eye banks over the nation have met affiliation requirements. In the first year and a half of operation, the Oklahoma Bank has provided corneal material for 78 transplant procedures, but still has a long waiting list of patients. The Lions Club sponsored bank is housed in the Medical School annex.

# Milk-Alkali Syndrome or Hyperparathyroidism?

*Proceedings of a weekly conference sponsored by the Medical and Surgical Services, VA Hospital and the Departments of Medicine and Surgery, University of Oklahoma School of Medicine and edited by Rene Menguy, M.D., Ph.D., and Mrs. Esther Compton.*

THE PATIENT is a 62-year-old, white male policeman who was admitted with the main complaint of shortness of breath. He gave a history of asthma since childhood, and recently had been complaining of dyspnea on slight exertion. His major difficulty was during the pollen season. About five years prior to this present admission he began to have attacks of severe exertional dsypnea somewhat relieved by rest. This has gradually progressed over the past five years and at present he is unable to walk more than one block on level ground and to climb more than one flight of stairs without having to stop. A week prior to this admission, he had another severe attack of dyspnea with peripheral cyanosis. His doctor diagnosed pneumonia and administered penicillin. Following this attack, he remained dyspneic and noted some pitting edema of his lower extremities. Fourteen years ago the patient was admitted to this hospital complaining of nausea and vomiting with some intolerance to fatty food. At that time, a gall bladder series revealed cholelithiasis. A cholecystectomy was done with good results. The upper gastrointestinal series was reported as normal. Since then he has complained of occasional episodes of heart burn and epigastric distress relieved by antacids. He usually takes four teaspoonfuls of the antacid daily along with as much as two quarts of milk a day.

Upon admission the patient was noted to have an increased AP diameter of his chest with minimal excursion of his diaphragm and a fixed rib cage. There were rales throughout both lungs, especially on the lower lung fields on the left. The liver border was palpable two fingerbreadths below the costal margin and there was moderate ankle edema. The neck veins were distended. The skin of the neck had a yellowish discoloration and appeared wrinkled. The skin in this area felt greasy to palpation and, when stretched, returned very slowly to its normal position.

The patient had obvious pulmonary edema at the time of admission. He was digitalized rapidly, sedated and given Diuril. Within the next 36 hours he lost eight pounds, the chest cleared and he has since had no difficulty with shortness of breath.

The laboratory studies that were done during this hospital stay were summarized in table 1.

After finding an elevated serum calcium, all antacids and milk were removed from the patient's diet. However, his gastroin-

TABLE 1

| | 11/9/58 | 11/18 | 11/21 | 11/24 | 12/2 | 12/5 | 12/12 | 12/29 | 2/2/59 |
|---|---|---|---|---|---|---|---|---|---|
| Hemoglobin g. | 13.5 | 14.1 | | 12.5 | | | 8.0 | 10.3 | 120 |
| Urea N. mg.% | 12 | 20 | | | | | | | |
| Creatinine mg.% | | | | | 1.6 | | | | 1.2 |
| Sodium mEQ/1 | 148 | 128 | | 134 | | 140 | | | 143 |
| Potassium mEQ/1 | 3.4 | 4.2 | | 3.8 | | 3.5 | | | 3.8 |
| Bicarbonate mEQ/1 | 33 | 40 | | 31 | | 32 | | | 27 |
| Chloride mEQ/1 | 104 | 78 | | 98 | | 92 | | | 101 |
| Glucose mg.% | 90 | | | | | | | | |
| Alkaline Phosphatase (B.U.) | 3.2 | | | | | 4.1 | | | |
| Albumin (g) | 2.9 | | | 3.0 | 3.4 | | | | |
| Total protein (g) | | | | 5.8 | 5.7 | | | | |
| Calcium (mEQ/1) | | | 5.5 | 6.2 | 7.2 | 6.5 | 4.8 | | 5.7 |
| Phosphorus (mg.%) | | | 2.3 | 3.8 | 2.7 | 2.4 | 2.7 | | 4.8 |
| Urinary Calcium (mg./24 hrs.) | | | | | | 48 | | | |
| Tubular Reabsorption of Phosphorus | | | | | 91% | | | | |
| (Spec. Gravity | 1.010 | 1.006 | | 1.003 | | | | 1.005 | 1.008 |
| Urinalysis(Albumin | 0 | 0 | | 0 | | | | 0 | Trace |
| (Sugar | 0 | 0 | | 0 | | | | 0 | 0 |
| Microscopic | 2-4 R.B.C. | 1-2 R.B.C. | | 4-6 W.B.C. | | | | 0 | 10-15 R.B.C. |
| P.S.P. | | | (15 min.=6% | | | | | | |
| | | | (30 min.=15% | | | | | | |

testinal symptoms worsened, his hemoglobin dropped from 14 to 8 and the stools which had been negative for blood became positive. Therefore an ulcer regimen without the antacids was resumed and iron was prescribed. In view of the high calcium an eye consultation was deemed necessary. This was negative particularly with respect to angioid streaking of the fundi and calcium deposits in the conjunctiva. When the patient was placed on a low calcium diet, the serum calcium dropped to five milliquivalents per liter and the urine calcium was 48 mgs.%, values which are within the normal range.

*Doctor Ridings:* The only abnormal studies that we have on this patient at present are the upper gastrointestinal series and the intravenous pyelogram. The former show some irregularity of the antrum with a small outpouching of the lesser curvature, suggesting the possibility of a shallow lesser curvature ulcer. The other x-rays that we have on this patient are pertinent only in regard to the negative findings. In view of the abnormalities in the calcium metabolism found in this patient, a diagnosis of hyperparathyroidism is considered. The skull x-ray on this patient is normal in appearance whereas with hyperparathyroid disease one would expect to find osteoporosis. We cannot look for the absence of the lamina dura, a characteristic sign of hyperparathyroidism, since this patient is edentulous. One of the early bony changes in hyperparathyroidism is the presence of subperiosteal resorption of the bones of the fingers and the phalanges; these are not found in our patient. One also looks for the presence of bone cysts with or without demineralization. Kidney stones or diffuse nephrocalcinosis are an important manifestation of hyperparathyroidism. Our patient does have renal stones.

*Doctor Smith:* Prior to discussing the specific diagnosis in this patient, it may be pertinent to review the physiology of calcium metabolism in the body. The dietary calcium becomes a part of the intestinal calcium pool which is also composed of calcium excreted into the intestine. Approximately 100 mgs. is absorbed per day from this pool. Various local factors within the intestine enhance or decrease the absorption of calcium. For instance, a patient on a protein free diet will absorb less calcium from the intestine. Protein free diets can be used in the treatment of hypercalcemia. On the other hand, a low intestinal pH and vitamin D will promote absorption of calcium. The absorbed calcium goes into the interstitial fluid calcium pool, containing about 900 mgs. of calcium. Bone is the largest reservoir of calcium, containing approximately one million

mgs.; a constant interchange of calcium between the bone and the interstitial fluid occurs and is under the control of the parathyroid gland. A fall in the serum calcium or a rise in the serum phosphorus is a stimulus to parathormone secretion. Parathormone acts in two ways: on the one hand it increases the excretion of phosphorus in the urine, thus allowing a secondary rise in the serum calcium; on the other hand it acts by promoting a direct release of calcium from bone. The normal individual is in a zero calcium balance and the 100 mgs. of calcium that are absorbed from the intestine daily appear in the urine. A normal individual will excrete between 50 and 150 mgs. of calcium per day in the urine. Our patient is excreting only 50 mgs. The dietary calcium has very little influence in raising or lowering body calcium. If excess calcium is given in the diet, only a small proportion of this will be absorbed, the remainder being excreted in the stool. It is very difficult, indeed, to understand how an excess of calcium alone could raise the serum calcium, since in addition the normal kidney is able to excrete a large amount of calcium. As much as 500 mgs. per 24 hours of calcium can be excreted by the kidneys. Therefore, it is difficult to produce hypercalcemia in the face of normal renal function. Of course this threshold can be exceeded if the kidneys had to excrete more than 500 mgs. per day. Furthermore, in face of pre-existing renal damage, it is quite reasonable to expect that the threshold could be exceeded at a lower level of calcium excretion. Under these conditions hypercalcemia can be produced and such was the case with the condition known as Vitamin D intoxication which was formerly seen in children.

The milk-alkali syndrome will be discussed at greater length below. However, I think that the one factor lacking in this patient to make a diagnosis of milk-alkali syndrome is the fact that his intake of milk and alkali was very small compared to what is usually reported in patients with this syndrome. I cannot reconcile the rise in serum calcium noted in our patient with an intake of milk of only two quarts daily.

Osteolytic bone tumors constitute another cause of hypercalcemia. Carcinoma of the breast with bony metastases can produce hypercalcemia. Multiple myeloma is sometimes complicated by a high serum calcium. Sarcoid may be associated with a high calcium. The mechanism for this is an excessive uptake of calcium from the intestine, and it has been postulated that in patients with sarcoidosis a substance similar to Vitamin D is responsible for this. Acute osteoporosis is another cause of hypercalcemia. In the usual type of chronic osteoporosis, however, the kidney is able to excrete the excess calcium liberated from bone.

Another cause of hypercalcemia has been only recently described and represents a very fascinating entity. Plimpton and Gellhorn[1] in New York have reported 10 cases of patients with carcinomas of various types; hypernephromas, adenocarcinomas of the uterus and the ovary and carcinomas of the liver and of the prostate who developed hypercalcemia without recognizable osteolytic lesions. Serum calcium returned to normal in several of the patients when the carcinoma was removed. Furthermore, normal alkaline prosphatase determinations done on these patients made it unlikely that the calcium was augmented from destroyed bone. The association of a low phosphorus with a high calcium in some of these patients suggests that such tumors are producing a substance very similar to parathormone with a similar action under the reabsorption of phosphorus by the renal tubules. It is also possible that these particular tumors are secreting a substance having a greater affinity to bind calcium. Since our patient has a gastric lesion which could be malignant, it is interesting to speculate on the possibility of such a mechanism playing a role in the abnormal calcium and phosphorus metabolism that has been found.

*Doctor Woods:* I would like to focus the discussion of the problem presented by this patient on whether he has a milk-alkali syndrome or whether the changes in calcium and phosphorus represent true hyperparathyroidism.

In about 85% of cases, hyperparathyroidism is due to a parathyroid adenoma. In

10% of the cases, diffuse parathyroid hyperplasia is responsible for the increased activity. Cancer of the parathyroids is found in approximately 1% of cases with hyperparathyroidism.[2,3] It appears that parathyroid hormone has two actions: one is a mobilization of calcium from bone resulting in hypercalcemia; the other seems to be a decreased reabsorption of phosphorus by the renal tubules. The metabolic alterations seen in hyperparathyroidism are characterized by hypercalcemia and hypophosphatemia. However, it is rather important to note that we are diagnosing at the present time more and more cases of hyperparathyroidism in patients with a serum calcium that is normal or at the upper limits of normal. The important diagnostic criterion in such patients is a lowered serum phosphorus. Because of this, it is important to make the diagnosis before the onset of renal damage. When the latter occurs, the kidney has a decreased ability to excrete phosphorus so that when the disease has progressed to a certain stage, a high phosphorus level is found. This makes the diagnosis of hyperparathyroidism more difficult since, (I repeat) in many cases the diagnosis of hyperparathyroidism will depend on the finding of a low serum phosphorus.

Because one of the effects of parathyroid hormone is a decrease in the reabsorption of phosphorus by the renal tubule, the determination of the phosphate reabsorption in any given patient will give a good estimation of parathyroid activity. In a normal individual, 85% to 90% of the phosphorus in the glomerular filtrate is reabsorbed by the tubules. In patients with definite hyperparathyroidism there is decreased reabsorption of phosphorus by the tubule, so that the phosphate reabsorption is only 70% or less.

Another clinical test based upon this physiological effect of parathyroid hormone is called the calcium loading test. If a normal individual with suspected hyperparathyroidism is given several grams of calcium intravenously, the increase in serum calcium produces a momentary suppression of parathyroid secretion. This results in a secondary decrease in the amount of phosphorus in the urine, or in other words, in an increase in the tubular reabsorption of phosphate over 85%. In primary hyperparathyroidism there is no change in phosphate handling by the kidney under these conditions. In our patient the tubular reabsorption of phosphorus was 91%, which is within the normal range. There are two possible explanations for this: The first one is the presence of renal disease which would result, of course, in a decreased ability to excrete phosphorus. The other possibility is that he does have a parathyroid adenoma and that the latter is not hypersecreting constantly but only intermittently.

As mentioned previously, we are seeing fewer and fewer patients with hyperparathyroidism and classical bone disease. The reason for this is not entirely clear but consequently we are recognizing other symptoms of the disease. One manifestation, which has been recognized only recently, is the development of personality disturbances to the degree of frank psychosis. Symptoms are completely reversible following removal of the parathyroid adenoma. A great many of these patients have gastrointestinal symptoms. Between 20% and 30% of all patients with parathyroid adenomas have a duodenal ulcer. The development of pancreatitis in patients with hyperparathyroidism has become recognized recently. Characteristically these patients have extreme muscular hyperlaxity. This is accompanied by weakness that may be extremely pronounced and can involve the respiratory muscles. Metastatic calcification is, of course, one of the striking complications. When this involves blood vessels of the extremities gangrene can occur. Metastatic calcification can occur extremely rapidly, particularly during states of parathyroid crisis when there is a rapid rise in the serum calcium to levels of 20 or 25 mgs.%. The predisposing cause for a parathyroid crisis is an episode of vomiting or gastrointestinal bleeding resulting in a decreased renal blood flow. The resultant dehydration and oliguria lead to rapid deposition of calcium throughout the body. One of the recent developments in hyperparathyroidism is an increased awareness of renal lithiasis as the only manifestation of hyperparathyroidism.

The reason for the formation of renal stones in a patient with an increased concentration of calcium in the urine is of course obvious. Less obvious is the mechanism of nephrocalcinosis which is a diffuse deposition of calcium salt in the kidney. This results in tubular disease with a glomerular filtration rate that is relatively unchanged. The urine has a low, fixed, specific gravity. Frequently there is acidosis in hyperparathyroidism.

The milk-alkali syndrome[4] which is another possibility in our patient, was first described by Burnett in 1949. The salient features of this syndrome are the development of hypercalcemia without hypercalcinuria, alkalosis and evidence of renal insufficiency. The serum phosphorus is normal or elevated. Such patients have a history of continuous excessive intake of alkali, along with an excessive intake of milk. The high alkali intake is more essential in the causation of the milk-alkali syndrome since the latter has never been seen in patients with a sole history of heavy milk intake. Metastatic calcification of muscles, kidneys and eyes is frequently found. The changes are reversible following the withdrawal of milk and alkali.

I do not believe that our patient has the milk-alkali syndrome since his serum phosphorus was low on at least several occasions. Furthermore, I believe that, even if further studies are negative, this patient should have a cervical exploration for parathyroid adenoma.

Finally we have to consider the gastrointestinal lesion presented by this patient. There is some doubt in our minds whether this is benign or malignant and I feel that this patient should be followed very closely with gastrointestinal x-rays and if the lesion does not disappear within four to six weeks the patient should have an abdominal exploration. The gastrointestinal lesion and the bleeding presented by the patient is further complicated by the fact that a diagnosis of pseudoxanthoma elasticum was made both on the clinical appearance of the neck and by skin biopsy. Since this is a disease of blood vessels as well as of the skin, vessels over the body and the gastrointestinal tract are also affected, and as a result, massive gastrointestinal bleeding can occur in these patients. This, of course, complicates our interpretation of his gastrointestinal lesion.

*Doctor Hammarsten:* Before we end our discussion I would like to ask the surgeons whether or not this patient should be explored and, if so, whether his neck or his abdomen should be explored.

*Doctor Menguy:* I think that so far we have very little evidence to support a diagnosis of primary hyperparathyroidism. Before milk and alkali were withdrawn we had two low serum phosphorus levels and one normal level. If the changes in kidney function and calcium levels noted in this patient are indeed on the basis of a milk-alkali syndrome, there should be a very rapid return to normal in two or three months. If at that time a high calcium and low normal phosphorus are found, I agree that his neck should be explored. The lesion in his stomach should also be watched very carefully. The location on the lesser curvature is somewhat reassuring. At this time I would at least recommend gastroscopy.

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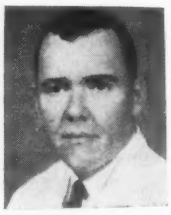

HONSKA

LEE

WELSH

## Eleven Appointments Approved by Regents

University of Oklahoma Regents have approved the following appointments to the faculty of the University of Oklahoma School of Medicine.

Oscar Albert Parsons, Ph.D., professor of medical psychology, Department of Psychiatry, Neurology and Behavioral Sciences. He comes here from Duke University, where he was associate professor and assistant head of the division of medical psychology and director of internship training. He received his Ph.D. at Duke; interned with United States Public Health Service, was a fellow at Worcester state hospital and Duke graduate school.

Frankie Nell Nations, M.D., assistant professor of anesthesiology, replacing Walter H. Massion, M.D., who was granted a one year leave for a research traineeship at the University of California. Doctor Nations, a graduate of Baylor University School of Medicine, has been in private practice in New Braunsfels, Texas, the past three years.

Everett C. Bracken, Ph.D., assistant professor of microbiological research, Department of Pediatrics. He earned his Ph.D. at Vanderbilt university; for the past three years has been assistant professor of microbiology at Vanderbilt.

Henry Neil Kirkman, M.D., assistant professor of pediatrics, comes to the Medical Center from the National Institute of Arthritis and Metabolic Diseases, where he was a member of the research staff last year and previously was a research fellow. He was graduated from Johns Hopkins Medical School in 1952, interned at Johns Hopkins and Vanderbilt University Hospital and was an assistant pediatric resident at Vanderbilt.

Richard Eugene Johnston, physicist, Isotope Laboratory, and instructor in radiological physics, Department of Radiology. Johnston has a master's in physics from Vanderbilt University, was an Atomic Energy commission fellow at Oak Ridge National Laboratory and, more recently, an engineer with Atomics International Research in Canoga Park, California.

Barbara Foster Braden, M.D., assistant physician in charge of Medical Center Health Service and instructor in preventive medi-

cine and public health. A 1957 graduate of the Oklahoma University Medical School, Doctor Braden interned and took one year of residency training in internal medicine at the Medical Center.

Walter Lee Honska, M.D., instructor in medicine and in preventive medicine and public health. Another Oklahoma University Medical School graduate, Doctor Honska interned at the Oklahoma City VA hospital, and stayed on at the Medical Center as a pediatric resident for one year and a resident in medicine for two years. He served as chief resident in medicine at VA last year.

Norman K. Lee, M.D., instructor in pathology. A graduate of National Chung Cheng Medical College, Nanchang, China, Doctor Lee interned at St. Joseph hospital, Patterson, New Jersey; took three years of pathological anatomy residency training at Jewish Hospital of Brooklyn, a one year anatomy residency at Sacramento county hospital, Sacramento, California, and two years in clinical pathology at the San Francisco Veterans hospital.

Jack D. Welsh, M.D., instructor in medicine. Doctor Welsh, chief resident in medicine at University hospitals last year, is a graduate of Nebraska School of Medicine and interned here.

Hideo Namika, M.D., instructor in pathology. He received his medical training at Maebashi, Japan, interned at Yokohama National hospital, and had six years of residency training at the University of Yokohama School of medicine before coming to the Medical Center as a resident in 1956.

Cecil Calbert Bridges, Jr., Ph.D., research associate in pediatrics, to work primarily in the Child Study center at Children's Memorial hospital. He holds a Ph.D. from Texas university; has served as a research scientist and research associate in speech at Texas and Northwestern universities and as a research evaluator for Oklahoma City public schools.

## ABSTRACTS

### Wound Healing: Investigation of Proteins, Glycoproteins and Lipids of Experimental Wound Fluid in the Dog (24937)

BETTY N. WHITE,* M. R. SHETLAR,** HELEN M. SHURLEY*** and JOHN A. SCHILLING****

Proceedings of the Society for Experimental Biology and Medicine, **101**: 353-356, 1959

Surgical implants of stainless steel mesh cylinders were made into subcutaneous tissue of dog's back. These were removed at intervals of one to four weeks. Wound fluid was aspirated from inside these cylinders encapsulated with fibrous tissue. When compared with animals serum, this fluid was lower in protein, glycoprotein, and lipid; and these components decreased with time during post-wound period. As studied by paper electrophoresis, wound fluid had a higher per cent of albumin and lower alpha-2 and beta-1 globulin. An elevation of protein-bound hexose was found in beta and gamma globulin fractions at three to four weeks. Seromucoid was present at same level in wound fluid and serum. The lipid partition revealed especially low phosphatides but similar cholesterol:protein ratios. It appears that time-related changes occur in large molecular constituents of fluid found in wound area which may be significant in wound healing phenomenon.

*Research Technician.
**Associate Professor of Biochemistry.
***Research Technician.
****Professor of Surgery.

### The Comparative Pharmacology of Tolbutamide, Carbutamide, Chlorpropamide And Metahexamide in Man

KELLY M. WEST,* and PHILLIP C. JOHNSON**

Metabolism, **8**: 596-605, 1959

The absorption of orally administered chlorpropamide and methahexamide in man is rapid and is usually virtually complete in two to three hours. The absorption of carbutamide is somewhat slower, and

the absorption of tolbutamide occurs much more slowly. Absorption of each of these four drugs is eventually virtually complete.

We found no evidence of differences in the potencies of tolbutamide, metahexamide and chlorpropamide in acute experiments in which serum levels of comparable magnitude were produced after oral administration. However, hypoglycemic responses of normal subjects to metahexamide immediately after intravenous administration suggested that it was about three to four times as potent as tolbutamide.

The serum levels of tolbutamide, metahexamide, carbutamide and chlorpropamide after intravenous injection are much too high to be compatible with the concept that they are uniformly distributed in the extracellular fluids. Direct measurements of tolbutamide, chlorpropamide and carbutamide in extracellular fluids other than serum such as edema, ascitic and pleural fluid indicate that levels in these extracellular fluids are considerably lower than in serum.

The serum levels of tobutamide, chlorpropamide and carbutamide 40 minutes after an intravenous injection are virtually identical, suggesting that there are no substantial differences among these three compounds in respect to the volume in which they are distributed in the body.

*Instructor in Medicine.
**Associate Professor of Medicine.

## Assay of Follicle-Stimulating Hormone In the Hypophysectomized Estrogen-Treated Immature Female Rat

R. W. PAYNE,* R. H. RUNSER,** J. A. HAGANS,*** and R. D. MORRISON.****

Endocrinology, 65: 389-394, 1959

An assay for pituitary follicle-stimulating hormone (FSH) using the estrogen-treated, hypophysectomized immature rat is presented.

Linear dose-response curves, which correlated with histological evidence of maturation of follicles, were observed with various preparations tested for FSH activity. Crude pituitary tissue from several species, as well as purified pituitary gonadotropins, were assayed for FSH content; potencies were evaluated by comparison of the slopes of the regression lines produced.

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****Associate Professor of Mathematics, Oklahoma State University, Stillwater, Oklahoma.

## Activation of the Ischemic Ventricle And Acute Peri-Infarction Block in Experimental Coronary Occlusion

LOYAL L. CONRAD,* T. EDWARD CUDDY,** and ROBERT H. BAYLEY.***

Circulation Research, 7: 555-564, July, 1959

Changes in left ventricular activation during the first 10 minutes following occlusion of the anterior descending branch of the left coronary artery were studied in dogs by using multiple intramural electrodes. Intramural block in the region of maximal ischemia occurred within two minutes after occlusion in all 29 occlusion episodes. Delay in activation progressed to an average value of 0.0267 seconds at the end of five minutes in this region while a delay of lesser magnitude (about 0.0040 seconds) was observed later in the surrounding zone. Least ischemic regions showed no change. During the 10 minute observation period there was evidence of increasing delay in activation of the innermost muscle layers in the region of greatest intensity of ischemia so that opportunity was provided for tangential activation of the superjacent outer muscle layers. In one experiment, tangential activation persisted after the appearance of characteristic changes of infarction until the experiment was concluded 24 hours after occlusion.

In the third minute after occlusion the amplitude of the R wave in the outermost layers of muscle in the central ischemic zone was observed to increase. By the end of five minutes it had doubled in height and remained so until the occlusion was released. The increased amplitude of R was attributed to the presence of multiple accession boundaries in and adjacent to the most intensely ischemic zone. The results of stimulation of the endocardial point in the ischemic region were valuable in supporting this conclusion.

The zone of maximum block effect and the zone displaying greatest increase in the amplitude of R were coincidental but appeared only in a small area which could be overlooked unless the ventricular surface was carefully explored. There were no distinctive changes in lead $V_R$.

Repeated occlusion and release in the same dog yielded the same results without significant differences in control or occlusion values.

Left bundle-branch block was produced by severing the left bundle and differed in all details from acute peri-infarction block resulting from coronary occlusion.

It is believed that these observations in dogs are pertinent to an understanding of the order of activation of the ischemic and freshly infarcted ventricle in man. The significance of these events for the development of peri-infarction block is apparent.

*Assistant Professor of Medicine.
**Fellow, Department of Medicine.
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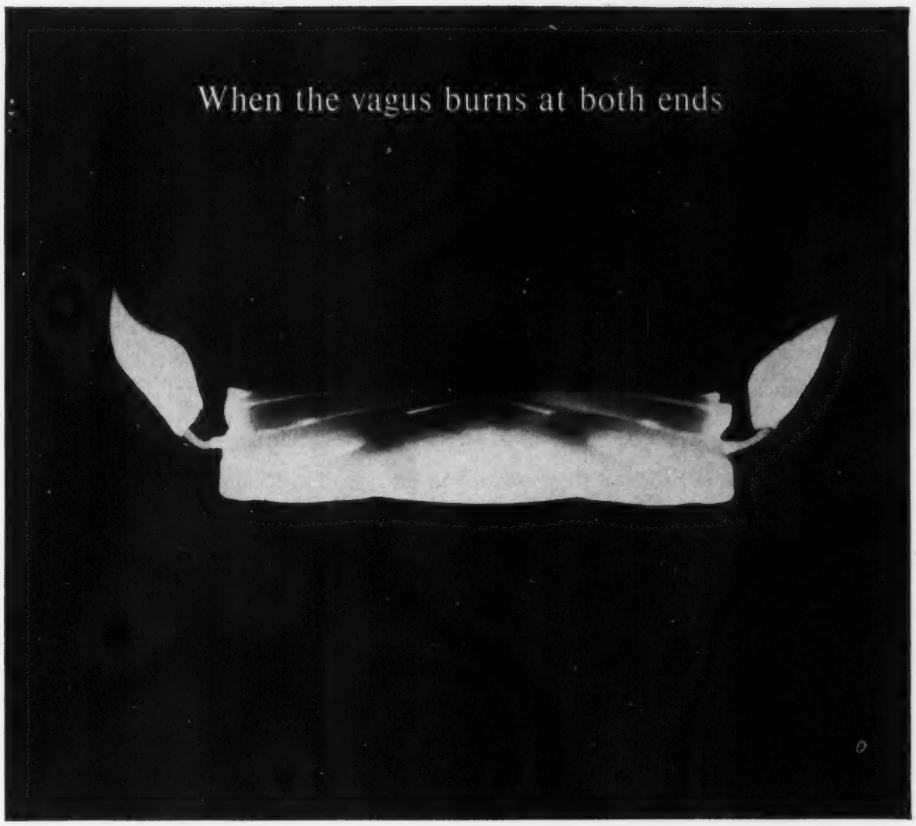


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*Dosage:* One tablet three times a day.

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# PRESIDENT'S LETTER

## Just a Trace of Welfare — Enough to Start an Argument

For some time, the doctors representing OSMA on the Advisory Committee on Medical Care for Public Assistance Recipients have appreciated the necessity of and expressed the desire to have additional members of the Association observe the monthly meetings.

This would give a broader understanding and wider dissemmination of the problems confronting the committee; the thinking, reactions and motivation of the non-physician members; and ultimately result in a larger number of Association members being prepared to assume the responsibility of membership on this committee, if called upon to serve. Whether we like it or not, we are in the Welfare Program up to our necks, and we need to be prepared.

I attended the meeting of the Committee on October 15, 1959 as an observer. I was impressed with the complexity of the problems presented and also with the necessity of continuing to have well informed, conscientious and dedicated members on this committee, as we have at present.

A summary of the September 1959 financial statement is interesting:

| | |
|---|---|
| Total Income | $1,050,236.00 |
| Total Expenditures | 1,264,931.33 |
| Deficit | $ 214,695.33 |

It is obvious that the government embarked on a program with inadequate financing, even for its present limited scope. It is unrealistic to expect physicians to bear the brunt of financing the program by reduction of fees, when the allied services will not accept a pro rata reduction.

It is also obvious that even with adequate financing of such a program, all services involved should exercise great caution in operating within the letter and intent of the program regulations, in order to retain solvency.

Clyde T. Baker M.D.

# THE CITATION

**MEDICO-LEGAL BRIEFS**
**Prepared by the Law Department of the American Medical Association**

*OHIO BILL WOULD ESTABLISH STATUTORY STANDARDS AND QUALIFICATIONS FOR ADMISSION OF PHYSICIAN TO HOSPITAL STAFF*—Currently there is, before the Ohio State Legislature, a bill, S.S.B. No. 413, known as the "King Bill" which would establish statutory standards and qualifications for the admission of a physician to a hospital staff. Specifically, the bill provides that:

"Any person who is licensed to practice medicine and surgery in this state, who has served in the armed forces of the United States during World War II or the Korean conflict as a commissioned medical officer and has been honorably discharged or separated from such armed forces, and who has completed an internship or internship and residency in a hospital in this state and has received a certificate of satisfactory performance from such hospital shall, subject to the rules and regulations of said hospital, be permitted to exercise his medical privileges to minister to the sick and needy in their homes, in his office, or in hospitals located in the county in which he resides.

"No hospital, whether publicly or privately owned, shall prevent any physician or surgeon who fulfills the requirements set forth in this section from ministering to the wants or the needs of any person admitted to a hospital who requests the services of such physician or surgeon or any person who is a physician's patient by reason of emergency or otherwise.

"No hospital, whether publicly or privately owned, shall, as a condition of admittance of a physician or surgeon to said hospital require that said applicant be a member of a medical society or be a graduate of a specified class of medical school.

"When application is made to a hospital for admission by a physician or surgeon to exercise his medical privileges, such physician or surgeon shall be given written notice of acceptance or rejection. In the event of rejection of said application, notice of rejection shall contain the grounds upon which the applicant is denied admission. Failure, by the hospital applied to, to accept or reject said application within sixty days shall be deemed to be an acceptance of said applicant by the hospital."

The Ohio State Medical Society is opposed to this bill on the grounds that: (1) it deprives *every* hospital in Ohio of the right of governing itself and selecting those physicians who are to have the privilege of using its facilities; (2) it would make it impossible for a hospital to discharge its legal duty and responsibility to make sure that the physicians to whom it extends the use of its facilities are professionally competent and morally and ethically sound and that they will conform fully and willingly to the established rules, regulations and discipline of the institutions; (3) it is unconstitutional and invalid for the reason that it would deprive a hospital of the right to run its affairs in such a way as it deems best; and (4) it is unconstitutional and invalid for the further reason that it is arbitrary, unreasonable, and discriminatory.

*PRIVILEGED COMMUNICATIONS*—On March 10, 1959, the Governor of Georgia signed a bill making communications privileged between psychiatrists and their patients.

State of Ga., Act 304, March 10, 1959.

*Further information on the preceding cases may be obtained from the Law Department, American Medical Association, 535 North Dearborn Street, Chicago, Illinois.*

# News

## AMA to Hold 13th Clinical Meeting in Dallas

The American Medical Association's 13th clinical meeting December 1-4 in Dallas, Texas, will draw some 3,500 physicians, mainly from the southern and southwestern states.

Planned in cooperation with Dallas physicians, the meeting is designed to help the family physician meet his daily practice problems.

Doctor Everett C. Fox, Dallas, is general chairman of the meeting, while Doctor C. D. Bussey, Dallas, is program chairman.

Among the subjects to be discussed on the scientific program are soft tissue injury; whiplash injuries of the neck; diabetes; heart murmurs in children; new laboratory procedures; new resuscitation techniques; premarital and marital counseling, and the problem child.

Doctor Hubertus Strughold, professor of space medicine at the School of Aviation Medicine, Randolph Air Force Base, Texas, will be principal speaker at the opening scientific session December 1. Doctor Strughold, often called "the father of space medicine," will discuss the role of medicine in the space age.

The winner of the AMA's Distinguished Service Award at the Atlantic City meeting—Doctor Michael E. DeBakey—will participate in a symposium on the surgical considerations of cerebrovascular insufficiency Tuesday afternoon, December 1. Doctor DeBakey, chairman of the department of surgery at Baylor University College of Medicine, Houston, was given the award for his outstanding contributions to medicine in the field of vascular surgery.

The scientific program, including lectures, symposiums, medical motion pictures, color television, and nearly 100 scientific exhibits, will be held in Dallas Memorial Auditorium. Industrial exhibits will number 251.

The auditorium will also house the "world's largest health fair," sponsored by the Dallas County Medical Society in conjunction with the AMA. The fair will run from November 27 to December 7 and will be open to the public.

The fair will feature 150 educational exhibits, prepared by the AMA, allied health groups and voluntary health organizations. They will be manned by members of the Dallas society.

Another special feature of the AMA meeting will be a national conference on the medical aspects of sports, to be Monday, November 30—the day before the AMA meeting opens.

The conference, to be held under the auspices of the AMA's Committee on the Medical Aspects of Sports (formerly the Committee on Injury in Sports) will be open to athletic directors, coaches, and trainers, as well as interested physicans.

The program will cover the general areas of the physiology and pharmacology of exercise, the training and conditioning of the athlete, and the prevention and treatment of injuries.

This is the second time that the AMA has met in Dallas. It held an annual meeting there in 1926. One AMA president has come from Dallas—the late Doctor Edward H. Cary, who was inaugurated in 1932 at the New Orleans meeting.

The AMA House of Delegates, numbering 208, will meet throughout the week at the Adolphus Hotel, meeting headquarters. The first act of the House will be to name the General Practitioner of the Year. The late Doctor Lonnie Coffin, Farmington, Iowa, was the last recipient of the award, given annually to an outstanding American doctor for his medical and civic contributions to his community.

The first recipient of the award was Doctor Archer Chester Sudan, Kremmling, Colorado, who received the award at the first clinical meeting in January 1948 at Cleveland.

## McNamara Hearings Swerve to the Left

Forand Bill opponents who have been optomistic about its defeat in the next Congress had better look at their hole cards according to recent reports on regional hearings being conducted by Senator Pat McNamara, Democrat from Michigan. McNamara, who heads the Senate Labor and Public Welfare sub-committee on Aging, is leading his legislative entourage around the country in a simulated effort to poll public opinion on the "aging" question.

To exponents of the free enterprise solution to the problem, the results of the first three regional hearings have not been encouraging. The "Town Hall" type meetings, held in Boston (October 13-14), Pittsburgh (October 23) and San Francisco (October 28-29) have had all the appearances of "stacked deck" testimonials to the need for Federal intervention, particularly in the provision of governmental health care to the aged.

One basic threat which has been present in all meetings is the indication that the aged are already coalescing into voting blocs. A classic example is to be found in California where the old folks' California Institute of Social Welfare runs a fifteen minute daily radio program on twenty-three stations, publishes a sixteen page newspaper and conducts some two hundred public meetings a month.

Also evident is the alarming fact that the legislative group is mainly interested in confirming its preconceptions and preparing for a Forand-type measure next year, probably combined with a hike in social security benefits.

Illustrating some of the sentiment expressed during the hearings are the following random quotations:

### What the Liberals Said

•McNamara: "They (elderly) have special health and housing needs, and our hearings . . . point the need for considerable Federal action . . . some of these people are living on $1,000 a year or less. They just can't exist on that."

•Phil Burton, Democratic Assemblyman, California: "Three major needs (1) Forand Bill or similar action; (2) Low-rent housing; (3) Increased OAA grants and a Federal law restricting states' rights to set residence requirements." He also stated that the age for OASI and OAA eligibility should be lowered.

•William L. Batt, Jr., Secretary of Labor and Industry, Pennsylvania: "Basic problem is simply a lack of money." Answer: Increase Social Security money benefits, earlier disability retirement provisions and health benefits through OASI.

•United Electrical Workers (Pittsburgh): Called for " . . . cradle to grave security . . . birthright of every American." Statement included proposal for free medical care to everyone.

•Thomas Pitts, President, California Labor Federation (AFL-CIO): "It is up to Congress to see that the AMA does not delay this bill indefinitely. The Forand bill must be passed."

•George McLain, Chairman and President, respectively, California Institute of Social Welfare and National Institute of Social Welfare: Generally, he threatened Congressmen with aged voting bloc; blasted the AMA for "dictatorial control in the medical and hospital fields" and attacked the Social Security Act as a supplemental program when " . . . it should be a real retirement program."

Specifically, McLain recommended:

1. Drastic revision of Act to include everyone 60 years or over, "whether they ever worked a day in their lives."

2. Social Security payments geared to Federal Minimum Wage Law, "now about $173 per month."

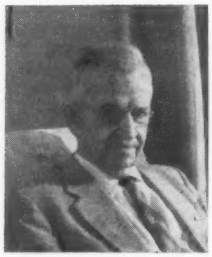
3. Esculator clauses to provide automatic pay increases during inflation. Also called for lowering of retirement age during periods of high unemployment.

4. Retirees under Social Security should be permitted to earn at least $2,400 per year and still qualify.

5. Give surplus food to aged.

# Oklahoma's General Practitioner of the Year

**Elgin's Doctor Martin Is Council's Choice For National Honor**



There are many paths to greatness. Some achieve such recognition through acts of heroism, others through unquestionably outstanding deeds and accomplishments in their chosen fields of endeavor. A few rise from the crowd without fanfare or sensationalism . . . the hardest way . . . through years of quiet dedication and single-mindedness of purpose.

Such a man is Elgin's Doctor Chesley M. Martin, the Oklahoma candidate for the American Medical Association's General Practitioner of the Year Award.

When the Council approved the Comanche-Cotton District Society nomination, it was apparent that there were many present who were not acquainted with his accomplishments. This was readily understandable upon review of his record of forty-four years of service to the people of this area. His history revealed the picture of a modest, unheralded man, whose only motivation was to use every ability he possesed to help others. Indeed, the degree of his selflessness had been the mark of his greatness!

Through his tireless efforts to serve the citizens of this Southwestern Oklahoma town of five hundred, he has created a perfect image of the American family physician and has become the community's "first citizen" as well. The socio-economic problems plaguing medical men nationwide are of little interest to the people of Elgin. "What's all the fuss?," a typical citizen would say, "If we get sick, we call Doc Martin . . . it's as simple as that."

### Pioneer Doctor

The seventy-year-old arrived in Elgin in 1916, one year after completing his final two years of medical education at the University of Oklahoma. His first two years were taken at Tulane, but he moved to Oklahoma from his native South Carolina in order to obtain summer employment from a brother in Fletcher.

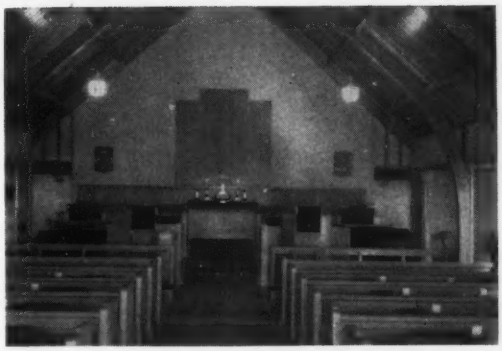
He bought a modest frame home on credit when he moved to Elgin and is still living in it, although it has been gradually enlarged as the family grew. The children are: Warren O. Martin, D.D.S., Henrietta, Texas; Edwin P. Martin, D.D.S., Healdton, Oklahoma; Mrs. Marion Wheeler, wife of a Denver architect; and Mrs. Eugenia Keller, wife of J. P. Keller, M.D., Duncan.

### Time for His Town

From the beginning, Elgin grew and prospered under Doctor Martin's guidance. He has led the community through a sustained period of evolutionary development that has placed it on a part in many respects with cities several times its size and economic potential.

At the outset, he became a member of the Town Board and Chairman of the School Board; serving thirty-one years in the first capacity and now beginning his forty-second year as the community's educational leader. Evidence of his contributions to society may be seen in every aspect of community life.

The city's water system was realized as a result of his inspiration and drive. Elgin's



Aesthetically correct and structurally sound, the Martin-designed church features laminated wood trusses and extensive use of wood panelling.

old red schoolhouse still stands, but clustered around it now are newer facilities for the highschool students, separate buildings for the junior high and elementary schools, a school-owned barn for the local chapter of the Future Farmers of America and a large gymnasium.

### An Accomplished Architect

Doctor Martin calls himself an amateur architect, but examples of his work show professional talent which belies his modesty.

In 1949, he drew plans and specifications for the gymnasium. Built at a cost of $40,000, the structure seats twelve hundred persons.

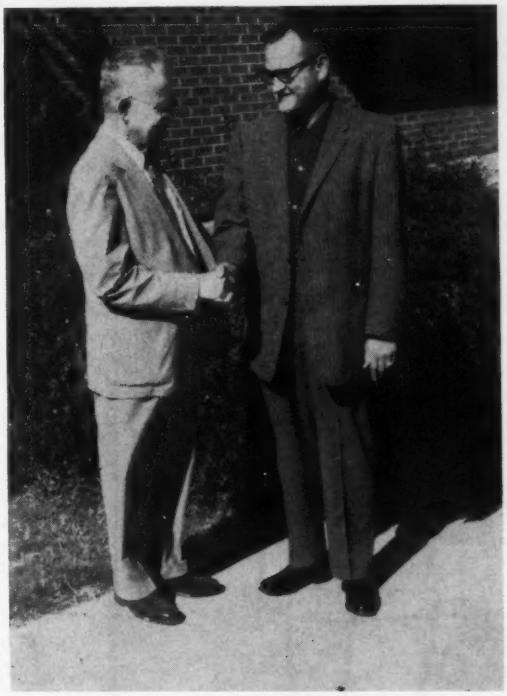
He has also designed and supervised the construction of the $58,000 Methodist Church. Not content with such contributions, the church's most revered trustee then donated an organ, a piano and service pieces for the holy table.

Members of the F.F.A. proudly display prize stock as Doctor Martin and instructor John Jones look on.

### Friend to Youth

The young men of Elgin have found a real champion in Doctor Martin. He promoted the construction of a 6,000 square foot barn for the use of the F.F.A. chapter; the largest school-owned barn in the state.

His interest in the activity has resulted in one of the outstanding chapters of the youth organization. The $7,000 Skelly Oil Trophy has been won twice by Doctor Martin's "boys." One more victory will give them permanent possession.



Doctor Martin is shown greeting one of his 2,500 "deliveries," Henry C. Smith, M.D., 38-year-old Lawton physician.

### Respected Colleague

The legendary Doctor Martin, who still serves an area encompassing some twelve hundred square miles, is held in high esteem by his fellow practitioners. In 1958-59, he served as chief of staff of Lawton's Memorial Hospital, a 150 bed, fully-accredited institution. Upon learning of his nomination for the national honor, a Lawton physician aptly expressed the sentiment of his colleagues: "If Chesley doesn't win it's only because the judges don't know him as we do."

## *Have something to exhibit*

**If so, you should apply now for space at the 1960 meeting of your association. Scientific Exhibits will again play a major role . . . so why not prepare a graphic presentation of your work and share it with the 700 physicians who will attend the state's largest medical meeting? A research or clinical project may be shown as an individual exhibit, or you may present a single case in the "Klinical Kaleidoscope" section.**

## *Research or clinical project*

**Perhaps you have done some original research, undertaken some experimental work, or simply drawn some conclusions based upon a series of interesting cases. Then you would be eligible to apply for an exhibit booth of your own in the Scientific Exhibit Section. A subject which has a special visual interest would be particularly suitable . . . and it need not be large—just stimulating!**

## *Bizarre case*

**All of us have encountered a unique case which is worth talking about. If you have a well-documented one which you would like to share with others, toss your hat in the ring today by completing the application on the opposite page. The "Klinical Kaleidoscope" section will be a varied selection of bizarre cases, each presented with one to five x-rays or illustrations and accompanied by a very brief abstract of the clinical course.**

# O.S.M.A. ANNUAL MEETING

*municipal auditorium · oklahoma city*

*may 2·3·4, 1960*

# APPLICATION FOR SCIENTIFIC EXHIBIT SPACE

## 54th Annual Meeting

### OKLAHOMA STATE MEDICAL ASSOCIATION

### Municipal Auditorium — Oklahoma City — May 2, 3, 4, 1960

1. **NAME AND ADDRESS OF APPLICANT:**

2. **TITLE OF EXHIBIT:**

3. **INDIVIDUAL BOOTH?** ☐ **"KLINICAL KALEIDOSCOPE" SECTION?** ☐

4. **SPACE REQUIRED:**

   A. **BOOTH: Indicate width in multiples of eight feet** _____

   (All booths will be 6 feet in depth)

   B. **"KLINICAL KALEIDOSCOPE": Indicate square footage:**

   **Wall-type display** _____ **Table top** _____

5. A. **GENERAL DESCRIPTION:**

   B. **MATERIAL TO BE SHOWN (Subject matter):**

   C. **METHOD OF PRESENTATION (x-ray, photos, graphs, models, etc.):**

6. **PREVIOUS SHOWINGS**

## ACT NOW — SPACE IS LIMITED

**Applications Must Be Received Prior to March 1, 1960**

**Oklahoma State Medical Association • Box 9696 • Oklahoma City**

On location, the "Old Age and You" panelists are (left to right): Tom Sorey, architect; Doctor Louis M. Orr, AMA President; Steve Stahl, moderator; Doctor Rita Campbell, American Enterprise Association, and N. D. Helland, Director of Oklahoma Blue Cross-Blue Shield.

## "OLD AGE AND YOU" Telecast Is Big Success

An outstandingly well-received television program, concerning the challenge of an aging population, was recently aired to a large segment of the state through the facilities of KOCO-TV. A joint project of the Oklahoma Public Expenditures Council and the Oklahoma State Medical Association, "Old Age and You" was presented as a special, one hour feature program of the "Voice of the Taxpayer" series.

Under the direction of Mr. Steve Stahl, Executive Vice-President of the Council, the program was designed to mold a realistic attitude toward aging among the people of Oklahoma. Since its presentation, Mr. Stahl's office has received nearly two hundred requests for written transcriptions of the panel discussion.

Mr. Stahl moderated the panel, which was comprised of such notable personalities as Louis M. Orr, M.D., President of the American Medical Association; Rita Campbell, Ph.D., Consultant Economist to the American Enterprise Association, Washington, D. C.; N. D. Helland, Executive Director, Oklahoma Blue Cross-Blue Shield Plans, and Tom Sorey, Oklahoma City architect and board member of Senior Citizens, Incorporated.

The one billion dollar per year Forand Bill, which would provide "free" medical, hospital, dental and nursing home care to social security recipients, received much attention from all of the panelists. Doctor Orr expressed the sentiment of the group, when he observed that such federal legislation would paradoxically lower the quality of health care being rendered to the elderly and would also fail to provide for the indigent elderly who could not qualify for the "benefits."

Doctor Campbell pointed out that the Forand Bill represented the establishment of a permanent program for a temporary situation. She explained that the low birth rates of the late 20's and early 30's would one day reverse the cycle of an aging population.

Mr. Helland said that such federal legislation would represent an untenable setback to the tremendous progress being made by prepayment plans and the insurance industry. He also criticized the cost of the Forand Bill in terms of the value to be received, stating that voluntary enterprise could deliver better coverage for less money.

One of the highlights of the program was Mr. Sorey's presentation concerning the community-sponsored retirement village now being planned for Oklahoma City.

## Nine Speakers Agree To Annual Meeting Talks

Burt F. Keltz, M.D., Chairman of the Association's Scientific Works Committee, has announced the names of nine noted physicians who have accepted invitations to appear on the scientific program of the 1960 Annual Meeting of the OSMA.

Representing the field of psychiatry will be Harold Rosen, M.D., Baltimore, Maryland; obstetrics-gynecology, Schuyler Kohl, M.D., Brooklyn, New York; Anesthesiology, Robert W. Virtue, M.D., Denver, Colorado; Dermatology, Vincent Derbes, M.D., New Orleans, Louisiana; Radiology, Ben Felson, M.D., Cincinnati, Ohio; Internal Medicine, Edgar Allen, M.D., Rochester, Minnesota; Surgery, Michael DeBakey, M.D., Houston, Texas; Orthopetic Surgery, Harold A. Sofield, M.D., Oak Park, Illinois; and, Urology, Grayson Carroll, M.D., St. Louis Missouri.

Positions which remain to be filled are in the fields of eye, ear, nose and throat, and pediatrics.

One outstanding feature of the program will be a morning session devoted to peripheral cardiovascular diseases. Doctors Allen, DeBaky and Virtue will speak on this subject for forty minutes each, followed by a panel discussion which will permit audience participation. Augmenting the discussion portion of the program will be local physicians from related fields.

The OSMA's 1960 meeting will be held in the Municipal Auditorium, May 2, 3, and 4.

## American Board of OB-GYN Schedules Examination

The Part 1 Examinations of the American Board of Obstetrics and Gynecology are to be held in various parts of the United States and Canada, on Friday, January 16, 1960, at 2:00 p.m.

Candidates must submit their case abstracts within thirty days of notification of eligibility. No candidate may take the written examination unless this is done.

Current Bulletins may be obtained from R. L. Faulkner, M.D., 2105 Adelbert Road, Cleveland 6, Ohio.

## Plans Formulated for Third Oklahoma Colloquy

A program on adrenal steroids has been developed for the Third Annual Oklahoma Colloquy on Advances in Medicine to be held March 24-26 at the University of Oklahoma Medical Center, Oklahoma City.

Fifteen guest lecturers and 13 members of the Medical Center faculty will participate.

Scientific papers will cover clinical application of the steroids in endocrinology, infectious diseases, gastroenterology, rheumatic disease, hematological diseases (including the leukemias and immuno-hemotological disorders), neoplastic, collagen, renal and allergic diseases.

Others will deal with the basic physiological and biochemical aspects of adrenal steroids. The pharmacology and side effects also will be discussed.

In addition to the general sessions, special interest meetings are planned in the fields of medicine, pediatrics, surgery and basic science.

A dinner meeting March 25 will give registrants an opportunity to meet with the participants informally.

The Colloquy was planned by the Oklahoma Medical Center Department of Medicine and Office of Postgraduate Education in collaboration with the Oklahoma City Internists Association, Oklahoma City Surgical Society and the Oklahoma City Pediatric Society. Merck Sharp & Dohme is a sponsor.

Guest participants are:

Charles W. Daeschner, Jr., M.D., associate professor of pediatrics, Baylor University College of Medicine, Houston, Texas; William J. Harrington, M.D., associate professor of medicine, Washington University School of Medicine, St. Louis, Missouri; Oscar Hechter, M.D., research associate professor, School of Medicine (Boston) Worcester Foundation for Experimental Biology, Shrewsbury, Massachusetts.

S. Richardson Hill, Jr., M.D., associate professor of medicine, University of Alabama Medical Center, Birmingham; David M. Hume, M.D., chairman, Department of Surgery, Medical College of Virginia, Rich-

mond; Dwight J. Ingle, M.D., professor of physiology, the Ben May Laboratory for Cancer Research, Chicago, Illinois; James C. Melby, M.D., assistant professor of medicine, University of Arkansas School of Medicine, Little Rock;

Don H. Nelson, M.D., associate professor of medicine, University of Southern California, Los Angeles; Bram Rose, M.D., associate professor of medicine, McGill University Faculty of Medicine, Montreal, Canada; Lewis H. Sarett, M.D., director, Synthetic Organic Chemistry, Merck Sharp & Dohme, Rahway, New Jersey.

Richard T. Smith, M.D., associate professor of medicine, University of Pennsylvania, Philadelphia, and director Medical Services Division, Merck Sharp & Dohme Research Laboratories, West Point, Pennsylvania; Louis J. Soffer, M.D., clinical professor of medicine, State University of New York, and endocrinology chief, Mount Sinai Hospital, New York City;

Howard M. Spiro, M.D., assistant professor of medicine, Yale University School of Medicine, New Haven, Connecticut; Ralph Tompsett, M.D., director, Department of Medical Education, Baylor University Medical Center, Dallas, Texas; Lawson Wilkins, M.D., professor of pediatrics, Johns Hopkins University School of Medicine, Baltimore, Maryland.

Additional information may be obtained by writing the Office of Postgraduate Education, University of Oklahoma Medical Center, 801 N.E. 13, Oklahoma City, Oklahoma.

## Bahamas Conferences Outlined

Ten medical conferences have been scheduled for the Bahamas during 1960 and through the spring of 1961.

An official certificate of attendance will be issued to those taking part in the conferences. Those attending may deduct all expenses pertinent to the conference from their income tax. American and Canadian citizens do not require passports. Vaccination certificates are not required.

Conferences, which will be held in Nassau, are: Eighth Bahamas Medical Conference, British Colonial Hotel, November 27-December 17, 1959; Second Bahamas Surgical Conference, British Colonial Hotel, December 28, 1959-January 16, 1960; Second Bahamas Serendipity Conference, British Colonial Hotel, January 17-January 30, 1960; First Bahamas Allergy Conference, Nassau Beach Lodge, March 5-March 12, 1960; Ninth Bahamas Medical Conference, British Colonial Hotel, April 1-April 14, 1960; Post Convention Bahamas Conference, June 18-June 25, 1960.

Also scheduled are: Tenth Bahamas Medical Conference, British Colonial Hotel, November 25-December 16, 1960; Third Bahamas Surgical Conference, British Colonial Hotel, December 27, 1960-January 14, 1961; Third Bahama Serendipity Conference, British Colonial Hotel, January 15-January 28, 1961; and the Eleventh Bahamas Medical Conference, British Colonial Hotel, April 3-April 15, 1961.

Further information may be obtained by writing to D. L. Frank, M.D., Organizing Physician, Bahamas Conferences, P.O. Box 4037, Fort Lauderdale, Florida.

## Samuel T. Moore, M.D. On Jordan Mission

Samuel T. Moore, M.D., Oklahoma City, will be the fourth American orthopedist to go to Jerusalem to help in the medical care of the half-million Jordan refugees in that ancient city. He will spend two months doing orthopedic surgery and treatment, primarily among children, under a project of the international Orthopedic Letters Club.

Accompanying Doctor Moore, will be his daughter, Carol, 17, who is going along to act as secretary and medical assistant to her father.

The medical aid plan, while sponsored by the OLS, actually is a co-operative project involving many organizations and agencies in this country and Jordan.

Jordan was chosen by the OLC for an overseas program Doctor Moore said, "because the tremendous need there captivated our imagination." There is a critical shortage of orthopedic specialists in Jordan and

those available cannot begin to care for the need of refugees.

Arab Medical Society is issuing temporary licenses to practice to the OLC members. Medical International Corporation, which sponsors medical missions in spots around the globe, is crating and shipping supplies to be used.

#### Others to Go

OLC has pledged to keep at least one member of its group in Jordan for the next 18 months. All of the physicians will pay their own expenses. Other Oklahoma City physicians who plan to follow Doctor Moore are William Harsha, M.D., Russell Harris, M.D., Robert Holt, M.D., William Waldrop, M.D., and John R. Stacy, M.D.

In addition to the help being given directly through the physicians' skills, OLC members are studying a long-range plan to help establish a permanent orthopedic hospital and training center for Jordanian doctors in Jerusalem.

## Date Set for New Orleans Graduate Medical Assembly

New Orleans' Roosevelt Hotel will be the site of the twenty-third annual meeting of the New Orleans Graduate Medical Assembly which will be held March 7-10, 1960.

Guest speakers and their fields of medicine are: LeRoy D. Vandam, M.D., Boston, Massachusetts, anesthesiology; Clarence S. Livingood, M.D., Detroit, Michigan, dermatology; Henry D. Janowitz, M.D., New York, gastroenterology; John G. Walsh, M.D., Sacramento, California, general practice; E. Stewart Taylor, M.D., Denver, Colorado, gynecology; Charles H. Burnett, M.D., Chapel Hill, North Carolina, internal medicine; Donald F. Matson, M.D., Boston, Massachusetts, neuro-surgery; Frank R. Lock, M.D., Winston-Salem, North Carolina, obstetrics; Trygve Gundersen, M.D., Boston, Massachusetts, ophthalmology; Carroll B. Larson, M.D., Iowa City, Iowa, orthopedic surgery; John J. Conley, M.D., New York, otolaryngology; W. A. D. Anderson, M.D., Miami, Florida, pathology; Franklin H. Top, M.D., Iowa City, Iowa, pediatrics; Raymond J. Jackson, M.D., Rochester, Minnesota, practology; Bentley P. Colcock, M.D., Boston, Massachusetts, surgery; David G. Pugh, M.D., Rochester, Minnesota, radiology; Robert M. Zollinger, M.D., Columbus, Ohio, surgery; and George C. Prather, M.D., Brookline, Massachusetts, urology.

Following the assembly, a West Indies clinical cruise has been planned. Scheduled to sail from Port Everglades, Florida on March 11th, the cruise will include stops in Puerto Rico, Virgin Islands, Martinique, Barbados, Trinidad, Curacao and Haiti. The ship will dock on March 25th.

Detailed information is available by writing to Mannie D. Paine, Jr., M.D., Secretary, the New Orleans Graduate Medical Assembly, 1430 Tulane Avenue, New Orleans 12, Louisiana.

## American Cancer Society Seminar Scheduled

Four guest speakers will highlight a professional seminar which has been scheduled by the American Cancer Society for December 5, 1959 in the Venetian Room of the Skirvin Hotel. The meeting will begin at 9:00 a.m. and continue until 5:00 p.m.

Speakers who will appear on the program and their subejcts are: Lauren V. Ackerman, M.D., Professor of Surgical Pathology and Pathology, Washington University School of Medicine, St. Louis, "The Role of the Biopsy in Cancer of the Breast" and "Some Pathological Types of Breast Carcinoma;" Cushman D. Haagensen, M.D., Director of Surgery, Francis Delafield Hospital and Professor of Clinical Surgery, Columbia University, New York City, "The Choice of Treatment for Breast Carcinoma and Its Surgical Phase;" William T. Moss, M.D., Director, Therapeutic Radiology, Chicago Wesley Memorial Hospital, Chicago, Illinois, "The Place of Radiotherapy in the Treatment of Breast Carcinoma;" and Henry M. Lemon, M.D., Boston University School of Medicine, Boston, Massachusetts, "Hormonal Therapy for Breast Carcinoma."

Additional information may be obtained by writing to Miss Kay Daniels, Director, Public Information and Service, American Cancer Society, Oklahoma Division, 1401 North Robinson, Oklahoma City, Oklahoma.

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Dosage: One tablet four times daily usually for five days. When infection is present, VARIDASE Buccal Tablets should be given in conjunction with ACHROMYCIN® V Tetracycline with Citric Acid.
Each VARIDASE Buccal Tablet contains: 10,000 Units Streptokinase and 2,500 Units Streptodornase.
Supplied: boxes of 24 and 100 tablets.

1. Innerfield, I.: Clinical report cited with permission
2. Clinical report cited with permission

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to school...
closure advanced[1]

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back on his feet
in a week after
recurrent episode[1]

REFRACTORY
CELLULITIS
normal routine
resumed after 4 days
of VARIDASE[1]

## Turner Participates in Endocrine Society Assembly

Henry H. Turner, M. D., Oklahoma City endocrinologist appeared as a panelist for two sessions of the 11th Post Graduate Assembly of the Endocrine Society, held in cooperation with the University of California School of Medicine.

Doctor Turner serves the Society as Secretary-Treasurer.

San Francisco was the site for the Assembly which was held November 9 through the 13th at Toland Hall, University of California Hospital, University of California Medical Center.

Doctor Turner participated in panel discussion with Moderator Brown M. Dobyns, M. D., F. Raymond Keating, M. D., Joseph E. Rall, M. D., Rulon W. Rawson, M. D., and Judson J. Van Wyk, M. D. Their subject was Disease of the Thyroid.

On Thursday, November 12, a panel including Carl G. Heller, M. D., E. Perry McCullagh, M. D., S. J. Segal, M. D., and Doctor Turner discussed Hypogonadism, Infertility, Sexual Precocity, The Use of Androgen Therapy.

## *Deaths*

JOSEPH M. THURINGER, M.D.
1886-1959

Joseph M. Thuringer, M.D., 73, for 31 years a member of the Faculty of the University of Oklahoma School of Medicine, died October 28 in Fayetteville, Arkansas.

Born in Switzerland, Doctor Thuringer received his M.D. from Creighton University in 1911 and joined the OU Medical Faculty in 1921. He was professor of Histology and Embryology. Doctor Thuringer moved to Fayetteville nine years ago and for several years served at Pathologist at the Veterans Administration Hospital there.

In 1956 Doctor Thuringer was presented the "Professor Emeritus of the Year" award of the Alumni Association of the University of Oklahoma School of Medicine.

CHARLES G. OAKES, M.D.
1908-1959

Charles G. Oakes, M.D., Sapulpa physician, died in Tulsa, September 25, 1959.

A native of Batesville, Arkansas, Doctor Oakes graduated from the University of Kansas Medical School in 1934.

After three years of practice in Hutchinson, Kansas, Doctor Oakes, a General Practitioner, established his practice in Sapulpa.

**AMERICAN MEDICAL ASSOCIATION**

**13th Clinical Meeting**

**in**

**DALLAS**

**December 1-4, 1959**

**For detailed information, write to—**

**Convention Services, 535 N. Dearborn Street, Chicago 10, Illinois**

# Auxiliary News

### Best-Sellers

*How to Plan Programs and Influence Members* would be at the top of the best-seller list for Program Chairmen and Presidents of Auxiliary. Many excellent ideas and stimulating programs are introduced to State Presidents during National Fall Conference held annually at Chicago in October.

But—by the time State Fall Conferences can be held, many county year books and annual programs have long gone to press. Conferences at State level are valuable, in that they can strengthen projects already undertaken, bringing State and County Officers and Chairmen together for discussion and evaluation. Oklahoma held its Fall Conference October 26 at the State Medical Office.

### Advice to Lovelorn

(Counties, that is!) This was the subject of the Program following the Open Board Meeting and Business Meeting at which Mrs. Clifford M. Bassett presided.

Mrs. James P. Luton, State Program and Health Chairman, conducted the clever "Advice to Lovelorn Counties" panel, with officers and chairmen acting as guest editors. Discussion in the Round followed, which covered organizational and functional questions submitted from various counties.

### The Informer

One fine way to keep your Auxiliary well-informed and up-to-date is by careful reading of *The Bulletin.* Few publications of this type can match *The Bulletin* in content, make-up, and consistently good coverage. We urge you to subscribe to it and be convinced.

Besides containing articles of current interest to every officer and chairman in Auxiliary, two contributions in the September issue (it is published four times a year)—are especially worthwhile: *Talking to Congressmen Back Home,* by Aubrey D. Gates, Director of Field Service Division, AMA; and *Freedom Needs No Apology,* by Doctor George M. Fister, Chairman of the AMA Council of Legislative Activities.

If you need understanding or procedure for planning programs that will be of value to your community, now is the time to start. Quoting from Doctor Fister: "I also urge you to act in the field of federal legislation through other organizations of which you are members. . . . The active support of many groups is needed if the time of permitting government to provide all our needs is ever to be stopped." One women's group, not affiliated with the medical profession, recently issued invitations to the presidents of many organizations in that county. Each guest-president was welcomed and asked to explain the purpose of her own group. Many explained current projects and regular activities.

Then the president of the hostesses explained the purpose of our meeting—a desire of their members to meet and find out what others were hoping to accomplish. With positive sincerity, the president outlined their state and national set-up, total membership, and common bonds. One statement was particularly impressive, in part: that their group realized that their individual freedoms, while helped in part by federal aid in emergency, were also threatened by being smothered and eventually completely eliminated.

Discover in your own community these "sisters under the skin"—there are many who still feel that *"Freedom Needs No Apology."* Become acquainted with them and work with them during the year, and obviously—years—that lie ahead.

# PHYSICIAN PLACEMENT

### Dermatology

Thomas E. Slimp, M.D., 323 West Livingston Place, Metairie, Louisiana, age 42, married, Syracuse Medical School, 1950, board certified January 1, 1960. No military obligations, available January 1, 1960.

Gordon Harold Ekblad, M.D., Field Medical Service School, Camp Pendleton, California, 53, married, University of Minnesota, 1930, available January 1960.

### General Practice

Donold D. Arthurs, 3240 N.W. 26th St., Oklahoma City, Oklahoma, age 27, married, Oklahoma University School of Medicine, 1958, no military obligations, available immediately.

Johnny Bill Delashaw, U.S.P.H.S. Hospital, Wyman Park Drive and 31st Street, Baltimore 11, Maryland, age 27, married, University of Texas Medical Branch, 1959, available July 1960.

D. H. Bessesen, M.D., Grand Canyon Hospital, Grand Canyon, Arizona, age 61, married, University of Minnesota, interested University Health Service, available October 1, 1959.

Sherman Allen Hope, M.D., 1105 Yale Ave., Panama City, Florida, PO 3-6656, age 27, married, University of Oklahoma School of Medicine, 1957, available July 1960.

Paul J. Vega, M.D., 6070 Orleans Ave., New Orleans, Louisiana, age 26, married, Louisiana State University, 1956, no military obligations, available now.

Thomas S. Whitecloud, M.D., 858 Market Street, Pascagoula, Mississippi, age 45, married, Tulane, 1943, veteran, has interest in teaching, availability date depends on situation.

### Internal Medicine

Richard I. Hochman, M.D., 37, Badger Road, Annapolis, Maryland, 31, married, New York University, 1952, available October 1, 1960.

Albert D. Roberts, Jr., M.D., 4333 Colgate, Dallas, Texas, 29, married, Southwestern Medical School, Veteran, available July 1959.

Van B. Saye, Jr., M.D., 1230 Brockenbraugh Court, Metairie, Louisiana, age 28, married, Medical College of Georgia, 1954, Air Force Reserve, available July 1, 1960.

### Locum Tenens

Arnold Giesbrecht, M.D., Hallock, Minnesota, age 34, married, graduate Winnipeg, Manitoba, 1957, prefers suburban or locality close to cities.

Frank H. Cooper, M.D., will complete internship at St. John's Hospital, Tulsa, on July 1. Would like to have locum tenens in general practice for one week, available after July 1, 1959.

James D. Green, M.D., second year resident in Internal Medicine at St. John's Tulsa, desires one year of Internal Medicine practice before taking third year of training. Prefers clinic in city of 50,000 or greater population.

### Obstetrics and Gynecology

Lynn W. Abshere, M.D., 708 N.E. 14th, Oklahoma City, age 31, married, University of Oklahoma School of Medicine, 1956, American College of OB-GYN, no military obligations, available July 1, 1960.

Gerald R. Keilson, M.D., Medical Arts Building, Dallas, Texas, age 31, married, University of Texas, 1953, board qualified, veteran, available in July 1960.

Milton Gardner Mutch, Jr., M.D., 423 Mills Avenue, Fargo, North Dakota, age 31, married, University of Minnesota, 1955, board eligible upon completion of fellowship, veteran, available July 1, 1959.

David H. Holmes, M.D., 1017 Grovena Drive, St. Louis, Missouri, 37, married, Washington University, St. Louis, Veteran, available July 1, 1960.

Nejdat Mulla, M.D., 1110 Belmont Avenue, Youngstown, Ohio, age 36, married, University of Geneva, Switzerland, 1952, American College of OB-GYN, not eligible military service, available July 1, 1960.

Harold G. Ray, M.D., 212 Darien Place, Box 503, Balboa Heights, Canal Zone, age 28, married, University Arkansas School of Medicine, 1955, now in active reserve, available July 1, 1960.

Alvon C. Winegar, M.D., 1940 Michigan, Benton Harbor, Michigan, age 41, married, Wayne University, 1942, no military obligation, available early 1960.

### Pediatrics

H. M. McClintock, M.D., 5712 St. John St., Kansas City, Missouri, 29, married, Baylor University, 1955, veteran, available December 1960.

### Surgery

(Name on Request) 32 years old, married, Tulane, 1952, veteran, board eligible.

Johnson P. Graves, M.D., Box 142, Pulaski Heights Station, Little Rock, Arkansas, age 36, married, Arkansas School of Medicine, 1950, board eligible, no military obligations, available Fall 1959.

Olin O. Williams, Jr., M.D., 3768 Alma Drive, Memphis, Tennessee, 29, married, University of Tennessee, veteran, available January 1962.

### Urology

Charles Lee Reynolds, Jr., M.D., 5012 Rockport Drive, Dallas, Texas, age 32, Southwestern Medical College, Dallas, 1949, board eligible, married, no military obligations, available July 15, 1960.

Alex Grossman, M.D., V.A. Center, Temple, Texas, 42, married, University of Texas, 1951, board certified, veteran, available now.

Herbert Sohn, M.D., 2010 Cliffview Road, Cleveland, Ohio, 32, married, Chicago Medical School, 1955, veteran, available July 1960.

# 25 YEARS AGO

Articles published in *The Journal* of the Oklahoma State Medical Association, November, 1934.

#### THE NEURASTHENIC PATIENT

S. C. Shepard, M.D.,
Frank J. Nelson, M.D., Tulsa

During the past few years, with the trend of medicine directed into the more highly specialized fields, the study of the patient as a whole has become almost extinct. Patients are shunted from one doctor to another in search of some obscure cause of their troubles. No one of those consulted seems to assume the responsibility or to make a close study of that individual. When no definite trouble is discovered for which a cure might be effected, or the patient has had first one then another operation without relief, and is finally dubbed a "damned neuro," is it any wonder that he begins to lose confidence in the profession of medicine, or at least in some of those who practice it? We are all guilty of mistakes, but that is no reason why we should not profit by them, and upon the next occasion give more consideration and study to each individual in order to prevent wrong judgments or erroneous diagnoses.

We hear a great deal about the rise to prominence of the various cults, nostrums, and the increasing use of patent medicines. A great deal has been said about legislation to control them, but that is only a makeshift, temporary relief. The most important thing is for all of us to do more real work in studying our patients, to keep up with the more recent advances in medicine and to do less talking about what the other fellow is doing. This constructive procedure will do more to restore the waning confidence of the public than can well be imagined.

The treatment of emotionally unstable patients is not easy. In the words of Noyes, "our theory of psychopathology is more highly developed than our technique of treatment." Each case offers its own particular problem, on the merits of which treatment should be undertaken.

In the first place we must realize that we are dealing with a human patient who has a mind and a personality not divorced from his physical being, and that his symptoms are due to unconscious conflicts and emotions.

It is necessary to win his confidence. This is perhaps most ably accomplished by and during frequent contacts occurring in the course of a thorough physical examination which at the same time permits more detailed study of the patient's personality and serves as the basis of later convincing the patient that his disease is not of an organic nature.

By education and explanation this patient must be made to understand the relationship of unconscious mental processes to somatic symptoms, and that his condition is not of an "organic nature." This is very difficult and the accomplishment of it is perhaps more of an art than a science, and depends to a great extent upon the personality of the physician and the susceptibility and education of the patient. On the surface the patient seems to see the problem but many are unable to understand it sufficiently to gain much practical value or relief.

# Coming Meetings

**UNIVERSITY OF OKLAHOMA MEDICAL CENTER**
**POSTGRADUATE PROGRAM***
**Individual Postgraduate Courses**

BASIC ELECTROCARDIOGRAPHY — February 29 through March 5.

OPTHALMOLOGY-OTOLARYNGOLOGY SYMPOSIUM—March 3 and 4.

OBSTETRICS-GYNECOLOGY SYMPOSIUM—March 5.

ADRENAL STEROIDS—March 24, 25, and 26. (Third Oklahoma Colloquy on advances in Medicine.)

ORTHOPEDIC SYMPOSIUM—April 22 and 23 (this date is tentative).

CARCINOMA OF THE SKIN—May 6 and 7. (Sixth Annual Combined Surgery, Radiology, Pathology Symposium.)

OKLAHOMA ASSSOCIATION OF HOUSE STAFF PHYSICIANS—Date to be determined.

**SERIAL POSTGRADUATE COURSE**

**Postgraduate Division**

**Oklahoma City, Oklahoma**
**1959-1960**

Wednesday Short Courses
3:30 to 8:30 p.m.

| | |
|---|---|
| Dec. 9 | Renal Diseases in Childhood |
| Jan. 13 | Carl Puckett Memorial Lecture and Infectious Diseases Symposium |
| Feb. 10 | Rehabilitation of the Cardiac Patient Guest Lecturer: William Tucker, M.D., Washington, D.C. |
| Mar. 9 | C. B. Taylor Lectureship and Urology Symposium—Guest Lecturer to be announced |
| Apr. 13 | Anesthesia for the Part-time Anesthetist |
| May 11 | Neurological Diseases in Childhood |
| June 8 | Surgery |

*Further information may be obtained from the Office of Postgraduate Education, University of Oklahoma School of Medicine, 801 N.E. 13th Street, Oklahoma City, Oklahoma.

**6th ANNUAL CANCER SYMPOSIUM**

**December 5, 1959** — **Skirvin Hotel**
**Oklahoma City**

The 6th Annual Cancer Symposium, American Cancer Society, Oklahoma Division, will be held at the Skirvin Hotel, December 5, 1959. Subject of the meeting will be "Cancer of the Breast."

**THE UNIVERSITY OF TEXAS**
**POSTGRADUATE SCHOOL OF MEDICINE**

**Course in Cardiology**

**December 7-11, 1959** — **Texas Medical Center**
**Houston, Texas**

The University of Texas Postgraduate School of Medicine has announced the James J. and Una Truitt Lecturer for the year 1959 will be Paul Wood, O.B.E., M.D. (Melbourne), F.R.C.P. (London). The guest lecturer from London will present a course in cardiology at the Texas Medical Center December 7-11.

For further information write to Office of the Dean, The University of Texas Postgraduate School of Medicine, 410 Jesse Jones Library Building, Texas Medical Center, Houston 25, Texas.

**AMERICAN COLLEGE OF ALLERGISTS**

**Graduate Instructional Course and Annual Congress**

**February 28-March 4, 1960** — **The Americana Hotel**
**Bal Harbor**
**Miami Beach, Florida**

The American College of Allergists will hold a Graduate Instructional Course and Annual Congress February 28 to March 4, 1960 at the Americana Hotel, Bal Harbor, Miami Beach, Florida. For further information, contact John D. Gillaspie, M.D., Treasurer, 2049 Broadway, Boulder, Colorado.

**THE NEW ORLEANS GRADUATE MEDICAL ASSEMBLY**

**March 7-10, 1960** — **Roosevelt Hotel**
**New Orleans, Louisiana**

The twenty-third annual meeting of The New Orleans Graduate Medical Assembly will be held March 7-10, 1960 in New Orleans. Complete details may be obtained by writing to Mannie D. Paine, Jr., M.D., Secretary, The New Orleans Graduate Medical Assembly, 1430 Tulane Avenue, New Orleans 12, Louisiana.

## MISCELLANEOUS ADVERTISEMENTS

17 BED hospital, clinic and equipment for sale. Prefer to sell all to one buyer in attractive package offer, but will consider other offers. Equipment includes X-ray, fluoroscope, Medco Sonalator, BMR, diathermy, etc. In settling estate of Charles W. Ohl, M.D., facilities and equipment will be sold at considerably less than original cost, and time payments may be arranged. Contact Walt Allen, Co-Executor, 116 North 4th Street, Chickasha, Oklahoma.

WANTED: General Practitioner—Five man established group. Prefer locum tenens for one year. Will meet competitive salary requirements for qualified man. Contact H. B. Landholt, Business Manager, Physicians & Surgeons Clinic, Box 711, Holdenville, Oklahoma.

FOR SALE: $40,000 per year General Practice. 14 room completely equipped clinic. County seat town of 4,000 with new 40 bed hospital. $5,000 will handle. Write Key J, The Journal, Oklahoma State Medical Association, P.O. Box 9696, Oklahoma City, Oklahoma.

PHYSICIANS WANTED: Qualified Physicians needed to work with psychiatric patients in 2,400 bed hospital near Tulsa; salary range $9,180 to $12,120; if Board Certified $11,700 to $15,540. Citizenship required. Vacationland for fishing, boating, other outdoor sports. Write for other particulars, Eastern State Hospital, Vinita, Oklahoma.

FOR SALE: Worden walnut consultation room furniture, new condition. Contact W. P. Jeter, M.D., 912 S.W. 50th, ME 2-1556, Oklahoma City.

BARGAINS—in medical equipment, new and used. Largest stock of good used medical devices in the Southwest. Reconditioned and guaranteed. We buy, sell, trade, rent, repair. Examining and operating tables beautifully refinished, rechromed, reupholstered. Tell us about your equipment problems. TeX-RaY Co., opposite St. Paul's Hospital, 3305 Bryan Street, Dallas, Texas.

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INDUSTRIAL PHYSICIAN, Oklahoma City, covering 2,000 employees, maximum salary $12,500 depending on experience and training. Write Key G, THE JOURNAL, Oklahoma State Medical Association, P.O. Box 9696, Shartel Station, Oklahoma City, Oklahoma.

FOR SALE: McKesson Waterless Basal Metabolism Machine approximately 4 to 5 years old. In good condition. Complete with masks, stand and oxygen tank. Price $200.00. Write Key H, The Journal, Oklahoma State Medical Association, P.O. Box 9696, Oklahoma City, Oklahoma.

PHYSICIAN NEEDED in Weleetka, Oklahoma; a city with population of 1500 and trade territory of 3000; Clinic available; community will remodel building to suit physician and offer other cooperation in the establishment of a practice; New hospital being built within 10 minutes from clinic. Contact: Bob Carroll, Cashier, State National Bank; Phone Sunset 6-2311.

WANTED: Surgeon to join old established group in town of 10,000 population in West Texas. Need not be Board certified but with adequate residency training. Write Key A, THE JOURNAL, Oklahoma State Medical Association, P.O. Box 9696, Oklahoma City, Oklahoma.

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